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ABSTRACT

This educational research was conducted to determine what affective and cognitive effects two different teaching methods have upon a group of 10th grade students learning about the Constitution of America. Both the experimental class, taught by the simulation-game method, and the control group, taught by the lecture discussion method, were instructed by the same teacher for a period of ten days. Pre- and post-experiment content examinations and attitude surveys were given to the two groups to determine comparative effects. Providing no statistical evidence to support the hypothesis that simulation-games enhance the ability of the student to acquire more factual and conceptual knowledge, this study does indicate that games can influence students' attitudes and values in a given direction. These findings also indicate a need for further investigation of such elements as measurement of retention, relevance, and transfer factors, and effects of the two teaching methods of different achievement levels. Appendices include a teaching guide of the game "Constitution Today," content and attitude tests, and a bibliography. Related documents are ED 048 176, ED 049 099, and ED 049 100. (Author/SJM)

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A COMPARATIVE STUDY OF SIMULATION GAMING AND LECTURE-DISCUSSION METHOD

A THESIS

Presented to

Dr. Dennis Kraft of the Graduate Faculty

Northern State College

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Education

SP003 365

by

Ronald Stadsklev

September, 1969

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I am especially grateful to Dr. Wollman for his patience and his continued support throughout this long and tedious process and to Dr. Kraft for becoming my thesis advisor at a time when it appeared that my thesis would never be completed.

A COMPARATIVE STUDY OF SIMULATION GAMING

AND LECTURE-DISCUSSION METHOD

Ronald Stadsklev

PROBLEM: This study attempted to determine answers to the following questions by experimental means: (1) What effects do these different teaching methods have upon the amount of knowledge a group of 10th grade students learn about the Constitution of America. (2) What effects do these different teaching methods have upon the students' attitudes toward the Constitution of America. (3) What is the students' attitudes toward the process by which they were instructed.

METHOD OR PROCEDURE AND DATA SECURED: The experimental class was taught by the simulation-game method and the control group was taught by the lecture-discussion method. Pre- and post-tests were given to determine the comparative effects.

RESULTS OR FINDINGS: This study provided no statistical evidence to support the hypothesis that simulation games enhance the ability of the student to acquire more factual and conceptual knowledge. On the other hand, it definitely established its increased effectiveness in dealing with attitudes and emotions.

SUMMARY AND CONCLUSIONS: Simulation-games seem to indicate that they can be powerful tools for influencing attitudes and values in the direction one desires to move them. The big moral implication of this is: who or how do we determine what are desirable attitudes and values?

Needless to say, teachers should be making an effort to understand this method and become proficient at employing it in their classes. It also means that college methods classes should be devoting significant attention and effort to this technique.

THESIS SPONSOR: Dr. Dennis Kraft

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CHAPTER I

INTRODUCTION

I. BACKGROUND AND SIGNIFICANCE

It is obvious to any observer that today, after fifty years of rather static condition, the social studies is now in the process of a revolutionary change, and this revolutionary change is exploding in every direction. Fenton has attempted to place these changes into five categories.

> Five semi-independent developments have been taking place concurrently in the social studies. One group of scholars has been developing ways to state objectives of instruction in terms of specific mental and physical acts expected from students and to develop tests to determine when these objectives have been attained. A second group has concentrated on the development of a variety of teaching strategies, each appropriate to a particular goal. A third group--by far the largest, best-financed, and most publicized--has produced new teaching materials. Others have evolved new ways to organize students for instruction in groups of various sizes. Finally, a fifth group has concerned itself with the training of teachers both in college and on the job.[1]

Why have these changes not taken place sooner and why are they taking place now? It is Hilda Taba's opinion that public schools have been growing too fast to allow them to give much time or effort to developing curriculum. They have been too harassed with problems of growing enrollments, mass attendance, and a shortage of teachers, buildings, and finances to make significant changes in curriculum. According to Taba, it is a wonder that schools have been able to do as much as

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[1]Edwin Fenton, The New Social Studies (New York: Holt, Rinehart, Winston, 1967), p. 3.

they have for as many as they have.[2]

Taba further stated that the reasons for the rapid change taking place in curriculum today are numerous and as yet not fully understood. However, she feels that the strongest forces causing us to make radical changes in our curriculum come from the radical changes in technology and culture.[3]

It is axiomatic that one of the universal goals that all these changes is aimed at is to make social studies courses more meaningful and relevant to the life experiences of the student.

A modern-day definition of social studies clearly indicates this concern for relevancy. For example, Cecil Parker defines social studies as, "...that phase of the school curriculum concerned with the relations of human beings to one another and to their environment."[4] In the past social studies meant the study of history and perhaps some geography. Today it is increasingly reflecting all branches of social science and developing a growing emphasis upon the behavioral aspect. According to Bruce Joyce, "...the three primary sources of social studies are found in the needs of the student himself, the needs of the society in which he will be a citizen, and in the social sciences themselves."[5] Therefore, curriculum developers are beginning to

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[2]Hilda Taba, Curriculum Development Theory and Practice (New York: Harcourt, Brace & World, 1962), p. 1.

[3]Ibid., p. 3.

[4]J. Cecil Parker, T. Bentley Edwards, and William H. Segeman, Curriculum in America (New York: Thomas Y. Crowell Company, 1962), p. 295.

[5]Bruce Joyce, Social Studies Extension Service Unit One: What Curriculum Approach for Social Studies (Chicago: Science Research Associates, 1966), p. 1.

implement an integrated social studies design that is based more upon process than upon content and are seeking to identify concepts and generalizations that are common to all social science disciplines.

In addition, men, such as Kenneth Boulding and Alfred Kuhn, who are interested in the social systems of man, are making great efforts to devise descriptors that will apply to all social sciences because, as Oppenheimer states, "we need . . . to develop habits of mind which permit truths from one field to elucidate facts in another, which develop a dedication and search for order in novelty, variety, and contingencies."[6] There is little doubt, in the mind of Ted Fenton, that a systems approach to the teaching of the social studies will soon be upon us.[7] Perhaps at that time, social studies will become a discipline in itself.

Needless to say, imaginative new teaching strategies will be required to facilitate this type of social studies curriculum. It is no mere coincidence that one of the fastest developing innovations within the social studies revolution is a new teaching strategy generally referred to as simulation.

According to the Washington Center for Metropolitan Studies, this new strategy seems to be a highly effective facilitator for carrying out the integrated type of program mentioned above, because it focuses on a comprehensive study of man's social problems. It helps to avoid the "academic myopia" which accompanies the increased

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[6]R. Oppenheimer, "An Inward Look," Foreign Affairs, 36 (January, 1958), p. 217.

[7]Edwin Fenton, Teaching New Social Studies in Secondary Schools (New York: Holt, Rinehart, Winston, 1966), p. 6.

development of specialization in social science. When one is conducting a study of the urban center, the problems of decaying core, suburban sprawl, traffic congestion, and air and water pollution are not solvable or even understandable, wholly within the realm of any one of the individual disciplines of social science. However, simulation can help students organize a great deal of fragmented knowledge and provides an extremely effective teaching device as well, because both time and space can be compressed so that the students take part in years, or even decades, of simulated development within a few hours.[8]

Simulation seeks to simulate certain aspects of life within the classroom and then allows the student to learn by experiencing the consequences of his actions within that simulated environment. Learning, therefore, comes not by "trying to learn," but as a by-product of coping with the environment.[9] Dr. Coleman states that simulation provides the social studies with a laboratory situation similar to that which the physical sciences enjoy.[10] Bruce Joyce discusses what kind of innovation promises to lead to better strategies of social studies curriculum and instruction in social studies and makes the following observation: "Currently there are several exciting experiments in instruction which can change educational strategies radically. One of these is teaching through simulation.[11]

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[8]Peter House, Manual for Region Game (Washington, D.C.: Washington Center for Metropolitan Studies, 1968), p. 2. (Copyright.)

[9]James Coleman, "Games: New Tools for Learning," Teacher Scholastic (November 9, 1967), p. 5.

[10]James S. Coleman, "Games as Vehicles for Social Theory" (Baltimore: Department of Social Relations, The Johns Hopkins University, 1968), p. 14. (Mimeographed.)

[11]Bruce Joyce, Strategies for Elementary Social Science Education (Chicago: Science Research Associates, 1965), p. 277.

Cleo Cherryholmes, the assistant director of Project Social Studies at Northwestern University, in a recent article made the following comment about simulation: "Simulation, a teaching technique sometimes called gaming, represents a dramatic exploration in teaching . . . the student not only studies as an observer but becomes personally involved."[12]

According to Hall T. Sprague and Gary Shirts, of the Western Behavioral Science Institute, simulations are important for this reason:

> They are conventional enough in appearance and superficial effect to gain acceptance into the public school system, and yet they (a) excite students about learning; (b) help them learn how to learn (by provoking inquiry); (c) provide experiential tools for learning; (d) influence the classroom climate so that subsequent sessions allow for more relevant learning activities.[13]

Although simulation is certainly not a panacea for the shortcomings of education, it does seem to offer as much potential for the future of education as any other single development on the educational horizon. By providing information in a meaningful context, simulation may have a tremendous potential for shaping and influencing the attitudes and convictions of the learner. Whether the simulations will lead to useful results or become a powerful way of generating false information and detrimental attitudes will depend upon the skill and competence with which it is used.

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[12]Cleo Cherryholmes, "Developments in Simulation in International Relations in High School Teaching," Phi Delta Kappan, XLVI (January, 1965), pp. 227-231.

[13]Hall T. Sprague and R. Gary Shirts, "Exploring Classroom Uses of Simulations," (Paper printed by the Western Behavioral Science Institute, October, 1966), p. 20.

II. STATEMENT OF THE PROBLEM

Simulation was chosen for this study because there has been a great deal of discussion concerning its powerful potential to bring about radical changes in social studies education. At a National Science Foundation workshop in Pueblo, Colorado, a paper was presented in which the writer listed observations made by simulations innovators and classroom teachers from various regions of the country, all supporting the use of simulation.[14] However, educational research still has a long way to go in ascertaining effects of simulations in the classroom. At the present time, very little valid research exists to support the many hunches and hypotheses that are being expounded by the supporters of simulation. Nicholas Fattu points out that it is very difficult to assess or measure inputs and outputs in simulation because it is such a complex process.[15] Nevertheless, before radical changes are made in social studies curriculum to accommodate the extensive use of simulation, there should be indisputable evidence that such changes are warranted.

It is especially true that relatively little scientific research has been undertaken to compare the actual effects of simulation in the classroom with the effects of alternative methods. It is the purpose of this study to compare the effectiveness of simulation over against the lecture-discussion method. The area selected for this study is

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[14]R. Stadsklev, "Simulation: What Is It and What Can It Do" (Unpublished paper presented at National Science Foundation Conference, Pueblo, Colorado, February, 1969), pp. 2-5.

[15]Nicholas A. Fattu and Stanley Elam (ed.), Simulation Models for Education (Bloomington, Indiana: Phi Delta Kappan, 1965), p. 120.

an area in which this writer has had difficulty in stimulating student interest, namely, a study of the American Constitution. It was felt that if simulation could make this area of study interesting and meaningful to students, then it could work with many other areas of the curriculum.

This writer has attempted to determine answers to the following questions by experimental means:

(1) What effects do these different teaching methods have upon the amount of knowledge a group of 10th grade students learn about the Constitution of America?

(2) What effects do these different teaching methods have upon the students' attitudes toward the Constitution of America?

(3) What is the student's attitude towards the process by which he was instructed?

III. DEFINITION OF TERMS

Game. Any contest (play) among adversaries (players) operating under constraints (rules) for an objective (winning).

Role-playing. The practice or experience of "being someone else." It differs from games in that it has more determined outcomes and may not be competitive as are games.

Social system. Refers to a portion of a total society--a set of interrelated parts of elements, each of which affects each of the others and is affected by each. It is a portion of the total society in the same manner that "circulatory system" designates a portion of a human body.

Environmental model. Term utilized to designate a set of interrelated factors or variables which together comprise elements which are symbolic of a social system. The variables utilized are limited to

those which are necessary to ensure that the model will function in essentially the same manner as the actual or the hypothetical system would function so that the model will possess a degree of likeness to reality or isomorphism.

Simulation game. Involves the use of role-playing by the actors during the operation of a comparative complex symbolic environmental model of an actual or of a hypothetical social process instilled into game form. It may be all-man, man-computer, or all-computer operations. It will give you a selective representation of reality, containing only those elements of reality that the designer deems relevant to his purpose.

Lecture-discussion method. Students are given reading assignments in the textbook, but most of the same material is presented in class by the teacher with little new information being added. The teacher will inject questions to the class now and then in her presentation of information and answer questions that students may ask.

CHAPTER II

REVIEW OF LITERATURE

I. A HISTORICAL SETTING

Games have probably been used for teaching and learning as long as man has inhabited the earth. However, authorities agree that military war games represent the earliest examples of what are defined in Chapter I as simulation games. Although war games have been engaged in for centuries, it was not until the 19th century that they were intensively developed and became a sophisticated means of training and predicting the outcomes of various military strategies. In 1798 a militarist named George Venturini developed a map game in which pawns represented troops. Throughout the 1800's, war games continued to consist mainly of markers representing different types and numbers of forces belonging to opposing forces, moved about on a map. The German General Staff brought war games to a high level of sophistication, using them to train officers in the analysis of military situations and the making of effective decisions, the testing of officers' abilities, and experiments with doctrines and war plans.

Prince Wilhelm who later became Wilhelm the I, Kaiser of Germany, introduced this game to the Prussian Army in 1824. Lieutenant Colonel von Flackenstein caused a sensation in Berlin in 1848 by developing a strategic game representing a war between Prussia and Austria. After the Prussians had defeated the Austrians in 1867 and then the French in 1870, the War Game of Prussia became popular in France, Russia, Italy, England, and the United States.

Throughout the 20th century, simulation war games have remained one of the most basic and essential techniques in military training. However it has developed far beyond the moving of markers on a game board. Today war games usually start with a verbal description of real world processes and a set of rules for imitating them. These processes are then flow-charted, and a logical and mathematical model is constructed. This model is simulated by manual or computer processes which produce results analogous to the real world.[1]

After World War II, business began to explore the possibilities of using simulation games. Although the first fully developed game (American Management Association's Top Management Game) was not readily available until 1957, there are now over one hundred different games in the field of business. These games are being used in colleges and business schools and in corporation executive training programs. They range from simple pencil and paper exercises to games extending over a school year and requiring computers and other electronic equipment.

Although the Rand Corporation conducted some laboratory experiments in the form of political games in the 1950's, it has not been until the 1960's that simulation gaming received serious consideration as a learning tool and an integral part of the academic curriculum. For a long time social theorists and child development psychologists have been focusing attention on the educational importance of games. It is also true that teachers have for a long time been using games in the classroom but chiefly as motivating devices or to dramatize certain

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[1]Clark C. Abt, "Twentieth Century Teaching Techniques," The Faculty, 30, 1 (August, 1966), pp. 6-7.

parts of a course. Therefore, games have been thought of as an auxiliary aid to the serious business of teaching and used primarily in the lower grades. This may be due to some extent to the fact that most children's games depend largely on chance or physical competence. However, unless a game successfully simulates some part of the physical or social environment, the things one might learn from it are almost irrelevant to real life.[2]

The area of the curriculum that has felt the impact of simulation gaming the most was Social Studies. During the early 1960's, Guetzkow and Cherryholmes at Northwestern University and Bloomfield and Paddleford at Massachusetts Institute of Technology were among the first to develop simulation games for the classroom. Most of these early efforts were based on political problems and international relations. Inter-Nations Simulation is probably the best known example of this type of game. In very recent years, a new trend has emerged in the development of simulation games. Developers are showing a strong interest in fashioning games that will give students insights into the socio-economic forces that shape our society and the problems that they produce.

Johns Hopkins' Academic Game Project is perhaps the most outstanding example of this new movement. They have produced such games as Life Career to give students familiarity with the decisions they will have to make in their own lives about jobs, further education or training, family life, and use of leisure; Consumer which creates a

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[2]Sarane S. Boocock, "Instructional Games" (Baltimore: Department of Social Relations, the Johns Hopkins University, 1968), p. 6. (Mimeographed.)

model of the consumer-buying process and involves players in the problems and economics of installment buying; Parent-Child which simulates the relationship between a parent and an adolescent in respect to five issues differentially important to both; Ghetto to simulate the pressures that the urban poor live under and the choices that face them as they seek to improve their life situation; and Disaster which is a simulation of a community hit by a localized natural disaster. Western Behavioral Science Institute is moving in the same direction. They have just devised a simulation game called Starpower which is useful for raising questions about the uses of power in a competitive society and illustrating the position of the disenfranchised segments of our society. At the present time they are developing one called Sitte to model the problems of power politics in local government and one called Campus which will attempt to deal with the causes of the disturbances taking place on our university campuses today.

Today, there is a growing interest both in the use and the development of simulation games. Although Abt Associates is undoubtedly the largest developer of simulation games in the nation, not many of their games become commercially available. Abt is a profit-making corporation that develops games on contract. For two or three thousand dollars they may develop a game to achieve certain stated objectives. In talking with the directors of Abt Associates, the writer found they were perturbed and somewhat dismayed that more of their clients did not use the games they produced for them and did not place them on the commercial market. However, in subsequent interviews with social studies project directors across the country, many of whom were clients of Abt Associates, the writer found that the big problem from their point of view was that the games were not operational. Each contact

interviewed, without exception, informed him that they had to spend hundreds of man hours "debugging" the games to make them operationally useable.

Some of the Abt games that have been debugged and are presently in use are Seal Hunting and Empire for the Education Development Center, Section for the High School Geography Project, Market for the Industrial Relations Elementary Economic Project, Pollution for the Wellesley Hills Collaborative Learning Media Packages Center, and Dangerous Parallel for the Foreign Policy Association (which is presently being manufactured commercially by Scott Foresman).

At the present time, Johns Hopkins University Academic Games Project and the Western Behavioral Science Institute are the only other major developers and producers of simulation games. However, new shops, such as the Interact group in California, Instructional Simulations Inc. in Minnesota, and the United States History Simulations Project in Oregon, are springing up every day. In addition, many games are being created by individual teachers for their own classes. Therefore, the actual number of simulation games developed during the past decade and the extent of their use are difficult to estimate. However, the simulation explosion is in progress.

II. THEORETICAL FOUNDATIONS

Structure and Analysis

Of the many new educational developments, simulation games are probably the newest and the least understood. Simulation in itself is not new to education and the process of learning. Most functional learning takes place by some type of simulation process. For example, how

does one learn to walk and talk? Likewise, educational gaming is certainly not a new innovation. Spelling bees were used in schools many years ago. What is new is the designing of games that effectively portray certain aspects of the real world, thereby combining the simulation process and the gaming process.

There is an effort being made to establish a theoretical foundation that explains what simulation games are and how they operate. James Coleman of the Academic Games Project at Johns Hopkins University listed six basic characteristics for simulation games.

> (1) You have players or actors each striving to achieve his goal.
> (2) Only a small fixed number of players are used.
> (3) It has rules defining and limiting the actions of the players.
> (4) The rules also establish a sequential pattern and structure in which the action takes place.
> (5) It is limited in time and scope and has a definite and again established by the rules.
> (6) The rules of the game really substitute for a period of time for the ordinary activities of life and rules of behavior. In other words, a simulation game partitions off a portion of action from the complex stream-of-life activities.[3]

Dale Garvey of Kansas State Teachers College lists only three basic characteristics:

> (1) it utilizes a symbolic model; (2) it requires the student to define the problems, to determine the available alternative solutions, and the possible consequences of those alternatives; and (3) it enables the student to receive practice in decision making in a situation devoid of danger if an incorrect judgment is made.[4]

To John Razor of Western Behavioral Science Institute, a simula-

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[3]James S. Coleman, "Academic Games and Learning" (Paper presented at the Invitational Conference on Testing Problems), p. 67.

[4]Dale M. Garvey, "Simulation, Role-Playing and Sociodrama in the Social Studies," The Emporia State Research Studies, XVI, 2 (December, 1967), p. 8.

tion game is a:

> replication of real life social processes, that can provide experimental learning which is realistic rather than pretend. Each simulation is built around a theoretical model which allows the participants to encounter reality. They make the decisions which are fed into the model and the model produces feedback for the participants, outlining the consequences of their decision. In each time period, there are similar cycles of planning--deciding--placing the decision into the model--receiving feedback from the model--and beginning a new cycle with planning.[5]

According to Paul Twelker, Project Director for the Teaching Research Department of Oregon State System of Higher Education, a simulation game operates in one of three ways: (1) it is used to present information; this he calls referential simulation; (2) it is used to evoke responses from the participants and give them practice in exercising previously learned principles; this is termed contextual response simulation; and (3) criterion simulation refers to an evaluative procedure where one uses simulation to assess an individual's performance.[6]

An attempt has been made by Clark Abt of Abt Associates to classify games according to the relationship between the player and the game, the degree of control which a player exercises over the outcome of the game, and the type of interaction that takes place between the players in the game.[7]

During the winter of 1968-1969, the writer developed a Games

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[5]John Razor, "Things to Consider in Simulation Models" (Handout at the Western Behavioral Science Institute Simulation Game Workshop, San Diego, California, June, 1969), p. 1. (Mimeographed.)

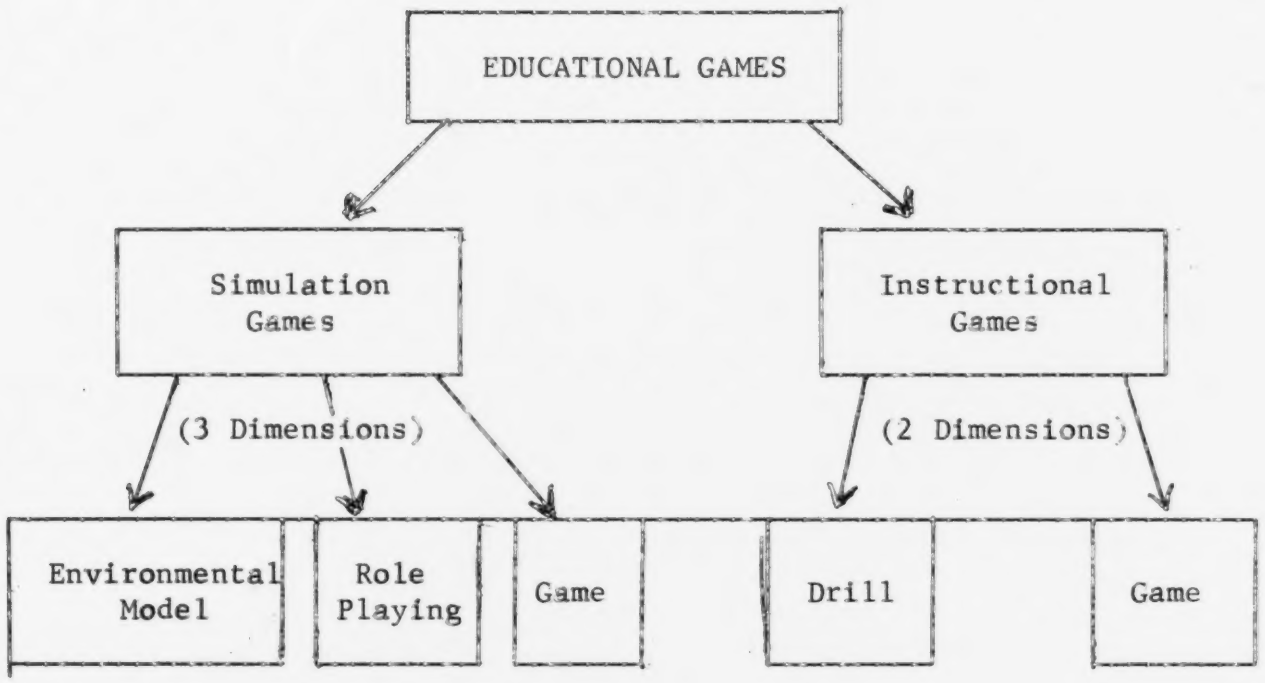
[6]Paul Twelker, "Simulation: What Is It? Why Is It?" (Paper printed by Teaching Research Department, Oregon State System of Higher Education), pp. 9-10.

[7]Clark C. Abt, Games for Learning (Cambridge: Educational Services, Inc., 1966), pp. 14-15.

Analysis System for the Social Science Education Consortium, Boulder, Colorado. The model on which this system is based is illustrated below together with definitions. Much of the theoretical work being done by the men mentioned above is incorporated into both the model and the analysis system itself.

SIMULATION: WHAT IS IT?

(Version 2)



Definitions

Educational game. Games which are useful in attaining educational goals.

Instructional games. Knowledge or information presented in a gaming process.

Simulation games. Involves the use of role-playing by the actors during the operation of a comparative complex symbolic model of an actual or of a hypothetical process instilled into game form. It may be all-man, man-computer, or all-computer operations. It will give you a selective representation of reality, containing only elements or

reality that the designer deems relevant to his purpose.

Environmental model. Term utilized to designate a set of interrelated factors or variables which together comprise elements which are symbolic of a social system. (Social system refers to a portion of a total society; a set of interrelated parts or elements, each of which affects each of the others and is affected by each.) The variables utilized are limited to those which are necessary to ensure that the model will function in essentially the same manner as the actual or the hypothetical system would function: that the model will possess a degree of likeness to reality, or isomorphism.

Role playing. The practice or experience of "being someone else." It differs from games in that it has more determined outcomes and may not be competitive as are games.

Game. Any contest (play) among adversaries (players) operating under constraints (rules) for an objective (winning).

Simulation. An operating model of a physical or social process. A selective representation of reality.

Drill. Process of teaching by making participants repeat an exercise again and again.

Rationale and Objectives

Being aware of what simulation games are and how they operate, naturally leads one to ask the questions: Why should we use simulation games? Are they valuable to the education process? To answer such questions, it is necessary to again turn to the pioneers that today are laying the theoretical foundations of the simulation game movement. Below is a list of statements representing the authorities in the field and indicating why they felt simulation games should be a

part of our educational process.

Coleman: "A good simulation is structured so that the player in pursuing his goal, must learn about the fragment of reality that confronts him."[8] Boocock: "They cannot learn that they have made mistakes unless they can make mistakes--and making a mistake in history means making a wrong decision, not failing to remember a date."[9] Abt: "Over-aggressive, uncontrolled, or apathetic behavior is punished in a non-fatal way in games. They discipline and institutionalize behavior through peer interactions."[10] Abt: "The student feels himself a cause of events rather than a merely passive spectator."[11] Wolff: "Children feel more secure in simulation games because gaming is a familiar experience for them."[12] "Like AV methods--simulation can avoid to a great extent the learning barrier of reading skill." Abt: "They can change the classroom, at least some of the time, from a lecture auditorium to a market place of ideas and a laboratory for cooperative experiments in knowledge."[13] Coleman: "When a child learns the nature of rules in a game, he is in fact becoming aware of the nature of moral order."[14]

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[8]Coleman, "Games: New Tools for Learning," op. cit., p. 5.

[9]Sarane Boocock, "Simulation and Games," Civic Leader, 37, 13 (December, 1967), p. 3.

[10]Clark C. Abt, Games for Learning, op. cit., p. 21.

[11]Ibid., p. 20.

[12]Peter Wolff, The Game of Empire (Cambridge: Educational Services, Inc., 1966), p. 8.

[13]Clark C. Abt, "Education is Child's Play" (Paper presented at the Lake Arrow Conference on "Innovation in Education, December, 1965), p. 6.

[14]Coleman, "Academic Games and Learning," op. cit., p. 68.

Coleman: "In games one learns to structure his actions towards a goal and also learns of the relationship of his actions to the larger structure of the actions of all the other players. Here he is learning both the whole and the relation between the parts."[15] "Simulation games provide a laboratory for the social studies are similar to that which the physical sciences enjoy."[16] "In simulation games, just as in real life, the learner uses the resources at his disposal in the way that will enable him to best realize his interests." Schild: "Due to the speed up process of simulating life, we can acquire a much more rapid feedback on decisions made by the students."[17] It is obvious that the rationale expressed in the above statements rests on certain premises and basic assumptions about educational goals and how one learns most effectively.

Paul Twelker stated that educators think too much about cognitive outcomes and too little about affective outcomes. According to Twelker, "if simulation games did no more than keep a potential dropout in school, it would be worthwhile using."[18]

The Western Behavioral Science Institute, a strong advocate of simulation games, expressed their point of view about educational goals in the following words:

> The most important goals for education are: (a) to help people become excited about learning, growing, and new experiences; (b) to assist them in learning how to learn; and (c) to

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[15]Ibid., p. 72.

[16]Coleman, "Games as Vehicles for Social Theory," op. cit., p. 12.

[17]E. C[illegible], "Learning in Simulated Environments" (Baltimore: Department [illegible]l Relations, The Johns Hopkins University, 1968), p. 9. (Mimeog[illegible]phed.)

[18]Paul Twelker, "Simulations: Status of the Field" (Paper printed by Teaching Research Department, Oregon State System of Higher Education), p. 26.

> provide learning resources and aids which fit their individual styles. The test of success for an educational system is whether the learners are "turned on" about learning, know how to learn, and are working with the best learning tools for them.[19]

In the same article, they quoted Dick Farsan, Director of Western Behavioral Science Institute as saying, "If we don't succeed in reaching out to each other and caring about each other, then there's not much point in succeeding at anything else."[20]

The simulation point of view regarding the goals of education was summed up very succinctly in the words of John Gardner, "All too often we are giving our young people cut flowers when we should be teaching them to grow their own."[21]

Students do not learn by being taught, and learning does not come by trying to learn. They learn by experiencing the consequences of their actions; it is a by-product of coping with their environment.[22] This point of view, expressed by Clark Abt, indicates the type of learning theory that underlies the use of simulation games. Supporters of simulation games put strong emphasis on such tenets as: a motivated learner acquires what he learns more readily than one who is not motivated; learning under the control of reward is usually preferable to learning under the control of punishment; quick and accurate feedback aids the process of learning; and transfer to new tasks will be better

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[19]Sprague and Shirts, op. cit., p. 20.

[20]Ibid.

[21]William Nesbit, "Simulation Games for the Social Studies Classroom," New Dimensions, Vol. 1 (1968), p. 10.

[22]Coleman, "Games: New Tools for Learning," op. cit., p. 5.

if, in learning, the learner can discover relationships for himself, and if he has experience during learning of applying the principles within a variety of tasks.

E. O. Schild maintained that when survival depends upon proper behavior and proper behavior in turn depends upon comprehending one's environment, it is surprising how much comprehension is attained. He illustrated and supported this premise with the example of a student learning to speak French. In an American school if you ask for the salt in good French, you get an A. In France you get the salt. In other words, behavior is shaped by its consequences. He also posed the question, When do most teachers really learn the subjects they are teaching? They learn much of it when they start teaching, because then they are putting their knowledge and understanding to use. Their survival in this environment is dependent upon having this knowledge.[23]

According to Twelker, simulation is better thought of as a philosophy. A philosophy that brings together two worlds--the instructional world and the real-life world. The philosophy of simulation has important implications. First, it implies that attention should be given to making the learner a participant in a realistic learning experience rather than an observer of a learning experience. Secondly, it implies a unique opportunity to enter the cognitive, affective, and psychomotor aspects of the learning process.[24] This is very significant to Twelker because he takes the position, "that learning is meaningful to the extent to which it seems real or worthwhile and to the extent

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[23]Schild, op. cit., p. 2.

[24]Twelker, "Simulation: What Is It? Why Is It?", op. cit., p. 32.

that it is shown to have interrelatedness."[25]

Such tenets concerning educational goals and the process of learning provide supporters of simulation games with a strong base from which to attack the contemporary educational processes. It is their contention that simulation games have a great deal of potential for improving the archaic educational systems that still operate in most sections of our country today. As Schild expresses it,

> Most innovations are tools to overcome some defect. Simulation games are tools that may well help us overcome a basic structural defect in school learning--that is, the remoteness of direct environmental contingencies from the behavior, knowledge, understanding, which is to be acquired.[26]

Sarane Boocock lists three traditional structural defects that she feels simulation games help to dissolve.

> (1) Education is geared to the future and therefore lacks immediate significance to students.
> (2) Rewards are intangible and tied to an individualistic competition. Every student knows that his success raises expectation for other students and decreases their rewards potential.
> (3) The role of the teacher stiffles student to student interaction.[27]

Boocock pointed to the fact that in simulation games the teacher is not required to be a disciplinarian or an administrator of rewards and punishments, neither is he required to judge the sufficiency of the student's performance. In this way, the formality of the traditional classroom is lessened, and the mutual distrust that usually exists between student and teacher is greatly diminished.[28]

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[25] Ibid., p. 34.

[26] Schild, op. cit., p. 15.

[27] Boocock, "Simulation and Games," op. cit., p. 5.

[28] Boocock, "Instructional Games," op. cit., p. 4.

Jim Coleman devoted a good part of his paper "Academic Games and Learning" to discussing the inherent weakness of our educational system and the manner in which simulation games help to alleviate these weaknesses. It was his opinion that schools have few if any means of providing a structure within which the knowledge can be meaningfully learned. Basically because they lack a structure of human action.[29] The usual model of typical teaching relies on the transformation of information by communication and believes that repetition aids learning. It has very little that resembles life-like situations.

Although psychologists consider the motivation of students to action in a given direction to achieve a given goal, the most important aspect of learning, the schools today still seem to operate on the assumption that students are already motivated to learn mathematics or history or whatever else it might be and all they have to do is provide them with information about these various subjects. The only way in which schools do much about motivating students to want to learn content is by providing grades and giving diplomas. This, however, doesn't provide much motivation to the students unless his background environment has caused him to "learn to be motivated" toward the goal of good grades or getting a diploma. Variations in school seem to have very little effect on what a child learns compared with variations in his family background. For if the essential learning task of learning to be motivated toward an object has been carried out, it generally has been carried out in the home prior to and concurrent with the school, but seldom if ever is it carried out within the school.[30]

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[29]Coleman, "Academic Games and Learning," op. cit., p. 72.

[30]Ibid., pp. 68-69.

Even more tragic is the fact, that after students graduate from school and there is no longer a motivating force of attaining good grades, learning seems to stop and they quickly forget what knowledge they acquired because it is not relevant to the goals motivating their life. What is worse, they may not have learned a goal at all. Consequently, they may now drift on through life in a meaningless way with no aspiration beyond that of survival.[31] Simulation games offer two important ingredients to the learning context that may help to change this gloomy picture. They are action in an environment, the student will react to the environment you place him in, and immediate reward, which takes place as the information and skills the student learns help him to achieve an immediate goal. He does not learn the information the teacher says he should learn or what he feels is needed to get a good grade, but what he needs for action.[32]

Coleman also pointed out that the content of courses usually have very little relevancy to the goals that are motivating the students, namely that of gaining good grades. However, in simulation the student is assimilating the material in order to be able to efficiently carry out actions toward his goal. The goal is, in fact, facilitated by the knowledge that the school is attempting to teach.[33]

The closing paragraph of Coleman's paper provided an excellent conclusion for this section on rationale.

> I am not describing games as a new teaching device, I am rather suggesting that the use of games in learning introduces

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[31] Ibid., p. 71.

[32] Ibid., p. 74.

[33] Ibid., p. 70.

> fundamental changes in the nature of the task the school is carrying out; that the use of games constitutes a fundamental change in the process by which learning takes place; and that the intrinsic character of games means that simulation games are especially appropriate for embedding into experience and cognition the structure of social action on which the human sciences are based. Certain of the details of these arguments may be incorrect; but they constitute a strong challenge to the current teaching activities of school, especially in the area ordinarily termed social studies.[34]

Experimental Studies and Observational Data

There is not a great deal of statistical research to support the claims of simulation game enthusiasts. Some of the reasons are as follows: First, many of the hypotheses about simulation games are the type that have apparent self-evidence.[35] Some examples are: children can avoid to a great extent the learning barrier of reading skill, students acquire a rapid feedback on the results of their decisions, their efforts are tied to immediate goals, and there is a high degree of interest generated in the classroom.

Secondly, there is the enormous difficulty of testing the theories with adequacy. There is an inherent conflict between using games for learning and using games as a research device. For if one uses them in a research study, it becomes automatically necessary to control enough of the conditions of the simulation to be able to attribute the outcomes to any particular parameters. However, the effectiveness of simulation games is in large part dependent upon involving the participants in a learning process that allows spontaneity and the opportunity for

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[34] Ibid., p. 75.

[35] Michael Inbar and Clarice Stall, "Autotelic Behavior in Socialization" (Baltimore: Department of Social Relations, The Johns Hopkins University, 1968), p. 1. (Mimeographed.)

improvisation.[36]

Thirdly, researchers have not as yet been able to devise very reliable and effective means of measuring and evaluating the affective domain. Therefore, although most of the suppositions about simulation games lie in the affective realm, most of the research has been concerned with the cognitive realm. It is interesting to note, however, that researchers consistently mention, in their findings and conclusions, observations about other aspects that they were not able to measure in statistical terms.

In his dissertation entitled "A Comparative Study of Textbook and Simulation Approaches in Teaching Junior High School American History," Eugene Baker found that the simulation group had a greater amount of immediate learning significant to the .01 level and a better retention at the .05 level. But he also mentions that there were indications that the simulation students favored a more centralized and efficient policy-making procedure and seemed to have greater appreciation for the complexity of our country's pre-Civil War problems and the decisions relating to those historical concepts.[37]

Garvey and Seiler's study of "The Effectiveness of Different Methods of Teaching International Relations to High School Students" showed no statistical evidence that the simulation group acquired any more factual or conceptual knowledge than did the control group. How-

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[36]William Gamson, "Establishing a Social Order in a Simulated Society" (Paper to be used as a chapter in forthcoming book, Social Science, by Michael Inbar and Clarice Stall, Free Press, New York), p. 3.

[37]Eugene Baker, "A Comparative Study of Textbook and Simulation Approaches in Teaching Junior High School American History" (Unpublished doctoral thesis, Northwestern University, Evanston, Ill., August, 1966), p. 71.

ever, they considered two observations to be of particular interest.

(1) The students who engaged in the simulation experiences appeared to derive real enjoyment from the exercise and to become deeply involved in the artificial environment of which they were temporarily a part.
(2) Those students who were members of the control group and did not participate in simulation periods appeared to be disappointed that they were deprived of the opportunity to experience what to them was apparently an exciting means of learning the substantive material of international relations which they were studying.[38]

Jerry Fletcher's dissertation "The Effects of Two Elementary School Social Studies Games" is another example of research conducted largely in the cognitive domain. He found that increasing the difficulty of the goal in the game has only a marginal effect on learning through the game. Reflecting on performance in the games through studying the feedback from previous plays appears to have enormous effects in increasing learning associated with the games, however, it did not significantly improve performance in the game or the knowledge of the best strategies in the game. Girls learned as much from the game experience as boys, but they could not play the games as well; slow students could play the games as well as the bright students, but they did not learn as much. Fletcher did not deal with other aspects of simulation game effects because as he stated it, "Many of the hypotheses about games which might become dependent variable in research studies are vague and even contradictory."[39]

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[38]Dale Garvey and William Seiler, A Study of Effectiveness of Different Methods of Teaching International Relations to High School Students (Final Report of Cooperative Research Project No. S-270, Kansas State Teachers College, Emporia, Kans., February, 1966), pp. 94-95.

[39]Instructional Simulation Newsletter, Vol. 2, No. 2 (June, 1969), pp. 5-6.

There have, however, been some efforts to study the affective outcomes of simulation games. Boocock, Schild, and Stall conducted a study to investigate the effect of games on students' control beliefs. The underlying premise being that the individual's sense of "control of destiny"--that is, the belief that he has the power to control his future rather than viewing his future as purely a matter of chance, strongly affects a person's behavior and certainly his learning achievement. The investigators found little difference between those that used simulation games and those that did not. However, they felt that the finding of this study could not be considered conclusive due to the weakness in research design and techniques. First of all, they used only two games. Secondly, the length of time involved in this study (eight days) was wholly inadequate. To increase someone's factual knowledge in eight days is one thing; to change someone's basic attitude in eight days is another. It is now clear that they should have used a number of different games over a long period of time and included a great deal of discussion and supplementary reading.[40]

In another study conducted by Sarane Boocock five major conclusions were formulated:

1. Games do produce greater motivation and interest, more focusing of attention, and less withdrawal from the learning situation than alternative techniques.

2. Learning and retention of factual material are as great from games as from textbooks, case studies, and lectures; in a few studies a

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[40]Sarane Boocock, E. O. Schild, and Clarice Stall, Simulation Games and Control Beliefs (Final Report of Government Contract No. OEG-2-7-061610-0207, The Johns Hopkins University, Baltimore, November, 1967), p. 79.

game has been found to be more effective; either in the amount of information learned or in reduced time to learn a given amount (probably a consequence of the greater focus of attention). This finding is more impressive when it is recalled that games are postulated as complementary to rather than directly oriented toward knowledge transmission.

3. Simulation games have a positive effect upon the student's sense of control of his environment and destiny, and attitudinal variable which has been found to be related to both family background and academic performance. By providing extended experience in artificial but realistic environments, such games may make up for lack of experience in enough real-life situations where the actor can observe the effects of his behavior upon his environment.

4. A given game can be used with students varying widely in age and ability.

5. There are no strong or consistent relationships between performance in a game and in other academic tasks. Thus, games may be especially valuable for the underachiever, the non-verbal, the culturally deprived, and other "problem" students.[41]

Although there has not been an extensive amount of research concerning simulation games and their effects, especially in the affective realm, many researchers and project directors have been making what is often referred to as "gut level" evaluation based on one's own experiences and observations.

On the basis of her own studies and observations, Sarane Boocock is convinced that the most important function of simulation games will

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[41]Boocock, "Instructional Games," op. cit., p. 10.

prove to be the communication of social processes or dynamics. She is also convinced that on the basis of the current theory of gaming the following effects can be predicted, although at the present time there is very little empirical research to substantiate it.

1. Understanding the relative costs and rewards of alternative strategies (including short-term vs. long-term strategies).

2. Understanding the nature and relative merits of competition vs. cooperation in reaching solutions to problems in which individuals or groups have differing goals and interests.

3. Understanding the role of change in human affairs and the degree to which one's "luck" can be controlled by good planning.

4. Understanding general principles and concepts (balance of power, exchange of support, deferred gratification) by actual experience of them rather than simply learning about them.[42]

In 1965-1966, the Western Behavioral Science Institute conducted an investigation of a simulation game in the classrooms of the San Diego County Schools with selected junior and senior high school social studies classes. On the basis of student responses to a questionnaire, staff observations, and teacher interviews, a list of hypotheses generated by the study was printed and called "An Inventory of Hunches About Simulations as Educational Tools." The list is as follows:

> 1. Simulations are "motivators." Their main payoff may be that they generate enthusiasm for or commitment to: (a) learning in general, (b) social studies or some other subject area, (c) a specific discipline like history, (d) a specific course, or (e) a specific teacher.

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[42] Boocock, "Instructional Games," op. cit., p. 11.

2. A simulation experience leads students to more sophisticated and relevant inquiry. That is, perhaps the important thing is what happens after the simulation is over, when students ask about the "model" which determined some of the elements of the simulation, about real world analogues to events and factors in the simulation, about processes like communication, about ways of dealing with stress and tension. Participation leads naturally into a critique and analysis of the simulation by the students, and this can lead easily into a model-building experience . . . . and the greatest learning occurs when students build their own simulations.

3. Simulations give participants a more integrated view of some of the ways of men. They see the interconnectedness of political, social, interpersonal, cultural, economic, historical, etc., factors. Simulations help people understand the idea of a "social system." The simulation experience helps them integrate ideas and information they already had.

4. Participants in simulations learn skills: decision-making, resource allocation, communication, persuasion, influence-resisting. Or they learn how important those processes are. They learn about the rational and emotional components of these skills.

5. Simulations affect attitudes: (a) participants gain empathy for real-life decision-makers; (b) they get a feeling that life is much more complicated than they ever imagined; (c) they get a feeling that they can do something important about affecting their personal life or the nation or the world.

6. Simulations provide participants with explicit, experiential, gut-level referents for ideas, concepts, and words used to describe human behavior. Everyone has a personal psychology or sociology . . . a simulation experience brings this personal view closer to reality. People know many things they don't know they know, and simulations act as an information retrieval device to help bring this knowledge to consciousness.

7. Participants in simulations learn the form and content of the model which lies behind the simulation. That is, in a corporation management simulation, they learn about the ways in which certain aspects of the marketplace are related; in an inter-nation simulation, they learn the relationship between the relative satisfaction of political influentials and the probability that leaders will retain office.

8. The main importance of simulations is their effect on the social setting in which learning takes place. Their physical format alone, which demands a significant departure from the usual setup of a classroom (chair shuffling, grouping, possibly room dividers, etc.), produces a more relaxed, natural exchange between teacher and students later on. Since simulations are student-run exercises, they move "control" of the

classroom from the teacher to the structure of the simulation, and thereby allow for better student-teacher relations. Simulations are usually very engaging; maybe one product of such engagement is that students drop their usual interpersonal facades, and maybe this leads to a more open classroom atmosphere in later sessions.

9. The teacher sees his students as more able than he had thought before, and the result may be that he looks to himself more to explain failures in the classroom.

10. Simulations--like any new technique--cause teachers to look at their normal teaching methods with a more critical eye.

11. Simulations create student enthusiasm in one classroom which may spread by informal student channels throughout the school.[43]

Although simulation gaming has yet to be fully weighed and measured, it presents a tremendous potential to be exploited by those that wish to make the educational process more meaningful, more relevant, and more effective. In the words of Hall T. Sprague:

> We must keep some sense of balance in our appraisal of simulations until we know a great deal more. However, let me add my personal feelings, uncontaminated by hard-data findings, that participation in a simulation--compared to hearing a lecture, reading a book, sitting in a group discussion, watching a film, working through a programed text, pushing buttons on a computer console, or listening to a tape recorder --offers more opportunities for individual learning and growth than any technique I have ever seen. I urge you to give it a try.[44]

III. FUTURE TRENDS

Anderson said, "We are in the beginning stages of a movement not just a technique."[45] Many of the developments taking place in simulation

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[43]"An Inventory of Hunches About Simulations as Educational Tools" (Paper printed by Western Behavioral Science Institute, La Jolla, Calif.), pp. 1-2.

[44]Hall T. Sprague, "Using Simulations to Teach International Relations" (Paper printed by the Western Behavioral Science Institute, La Jolla, Calif.), p. 29.

[45]Nesbit, op. cit., p. 47.

today have far reaching implications for the future.

There is a growing effort to design simulation games that become the focal point of a whole unit or perhaps the whole course. The High School Geography Project has several units that accomplish this nicely. Bill Gamson, Professor of Sociology at Michigan University, attempts to teach a large portion of his social psychology course by having the students learn through experience in a simulated society what he used to spend many hours presenting to them in the form of lectures. He has spent several years developing and refining a game called Simsoc that will accomplish this goal effectively.[46]

Over the past eight years, Twelker and associates have been developing an educational methods course built entirely around simulation activities. This process is based on the premise that exposition of educational methods or principles could be expected to help the teacher talk about teaching, but only classroom experience (simulated or real) could train the beginning teacher to teach. It involves an integrated complex of movie projectors and computers. A film describing a classroom situation is projected from the rear of a screen. The student standing in front of the screen reacts as he would to a live class situation. Whenever the film reaches a point where the teacher must make a decision, it stops and waits for him to react to the situation confronting him. They have computerized most of the various reactions teachers can make to each given situation and created the many various alternative courses of action that can be projected on the screen immediately after the student teacher makes his decision. In other words, they are

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[46]Gamson, op. cit., p. 4.

able to simulate a live situation where the teacher reacts to the class and the class reacts to the teacher.[47]

A new trend, which is quickly becoming a new focal point for the simulation game movement, is the designing of games by teachers and students. In this way games could be developed that would be designed to suit the exact needs of individual classes. Furthermore, authorities seem to agree that the experience of designing a simulation game has an even greater impact on the persons involved than participating in one. Before one can create a workable model of some social system to be used in his game, he must first gain a good understanding of how that system operates in real life. John Razor has listed what he considers to be benefits derived from attempting to design a simulation game as follows:

> (1) It forces you to be explicit--exact meanings of concepts must be clarified; (2) It forces you to be humble--you realize you don't know it all; (3) It expands you beyond your discipline--you must become interdisciplined; (4) It broadens your scope--it forces you to communicate with others outside the relevancy of materials; (6) Serendipity--forces you to become conscious of those things you were not looking for.[48]

Designing an effective and operational simulation game is no easy task. As Sarane Boocock and E. O. Schild state in their book on Simulation Games, "Simulation design is not only not a science, it is hardly a craft, but rather an art in the sense that we have no explicit rules to transmit."[49] However, the main values that are derived from the experience of trying to design a simulation game are realized

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[47]Twelker, "Simulations: Status of the Field," op. cit., p. 16.

[48]Razor, op. cit., p. 2.

[49]Boocock, Sarane and E. O. Schild, Simulation Games in Learning (Beverley Hills, Calif.: Sage Publications, Inc., 1968), p. 266.

regardless of whether the game is operational or not. It has also been pointed out that the process of just trying to improve or modify a game will produce many of the same results only at a lesser degree.

Furthermore, an extensive effort is presently being made by game developers to establish "explicit rules" and a systematic procedure for the process of developing a simulation game.

John Razor lists eight things to consider in developing a simulation model:

1. What are the goals of the simulation?

2. What is the reality of the situation?

3. How will you define the status of the participants? i.e., scenario, points, position, goals, graphic representation, roles, profile, etc.

4. What are the decision units? Process (negotiate, strike, slowdown). Economic (money). Politics (votes, funds). Personal (space, resources, stress points).

5. What type of units will the consequences reflect? Economic (profit--loss, taxes, dividends, etc.). Social (smog, noise, traffic, world status). Political (being re-elected, power shift, control, funds for campaign). Personal (comfort, mobility, wealth, status).

6. How will the consequences be given to participants? Extra points, charts, external decisions, influence points, etc.

7. What are the relationships between the decisions and consequences? Single winner, everyone win, resolved through conflict.

8. Other things to consider: The role of chance, special equipment, ruler for communication in groups, feeling of open-mindedness, fiction.[50]

Ray Glazier in his booklet, How to Design Educational Games, lists ten steps of game designing:

1. Define overall objective (teaching, analysis, design, test, exploration, etc.)

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[50] Razor, op. cit., p. 2.

2. Determine scope (duration, geographic area. issues).

3. Identify key actors (individual groups, or organizations making the critical decision).

4. Determine actor's objectives (power, wealth, influence, etc., in specific context).

5. Determine actor's resources (physical, social, economic, political, information).

6. Determine the interaction sequence among the actors (flow of resources and information to and from each actor).

7. Determine the decision rules or criteria on the basis of which actors decide what resources and information to transmit or receive, and what actions to take.

8. Identify external constraints on actions of the actors (such as no violence being permitted in a competition among Quakers).

9. Formulate scoring rules or win criteria on the basis of the degree to which actors or teams of actors achieve their objectives with efficient utilization of resources.

10. Choose form of presentation and manipulation (board game, role play, paper/pencil exercise, computer simulation) and formulate sequence of operations.[51]

Cleo Cherryholmes of Northwestern University, Samuel Livingstone of the Academic Games Project at Johns Hopkins, and Paul Twelker of Teaching Research at Monmouth, Oregon, have each listed what they consider to be the necessary steps in designing a simulation. Needless to say, each is different in scope and sequence. Most of the organizations that these people represent have been engaged this past year in setting up workshops for the purpose of helping teachers learn how to design simulation games.

Fred Goodman of Michigan University is seeking to design a game in which participants develop models for games; an effort to make game

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[51]Ray Glazier, How to Design Educational Games (Cambridge: Abt Associates, 1969), p. 6.

designing into a game itself. Instead of just another game that subtly imposes the designer's value system on that of the players, Goodman hopes his game will cause players to ask themselves what the purpose of the game is and what it means to win.[52]

According to Del Scholock one of the major applications of simulation in the future will be in the area of measurement. Because simulation type tests are closely allied to real-life situations, they are great potentials as predictive measuring instruments.[53]

Mike Rockler, a member of the Project Social Studies staff at the University of Minnesota, constructed an unusual test for his eighth grade class at the University Laboratory School. After finishing an area study of Russia and its people, the students were provided the opportunity to play a game called Commissar, a very traditional type game, that can be purchased in a department store. His examination required each student to compare the model of Russia used in this game with the knowledge they had acquired about Russia and its people and identify which aspects of the game were realistic and which were unrealistic. Of course, each judgment had to be supported by factual information.

The Simulations Environmental Laboratory at Michigan University and the Metropolitan Study Center in Washington, D.C., are examples of still another trend in simulation gaming that promises to have far reaching implications in the immediate future. Both centers are study-

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[52]Fred Goodman, "The Design of a Simulation Game for Counselors" (Manuscript being prepared for publication in forthcoming book, Social Science, by Michael Inbar and Clarice Stall, Free Press, New York), p. 23.

[53]Instructional Simulation Newsletter, Vol. 1, No. 3 (November, 1968), p. 8.

ing the problems of decaying core, suburbia sprawl, traffic congestion, air and water pollution, and other problems related to large urban developments. They have developed simulated games that are proving extremely effective in training personnel in the technique of sound city planning and management because they focus on a comprehensive study of man's social problems.[54]

In the future, television could well provide the means of simulation gaming on a grand scale. In the Spring of 1968, a pilot program was tested called Cabinets in Crisis. In the three cities of Boston, Philadelphia, and Rochester, New York, the studio audience took roles of executives, while the home audience acted as the legislature who sent back replies to the executives to try and influence them. It was played for one day per week for five weeks. The same game has been played with English speaking students in Singapore, Kenya, and Chicago. Since television is so universally accepted and watched, the potential impact that could be developed from its use in this area is staggering. A family might sit down for an evening in their front room and engage in a social simulation game involving other people throughout the country or even throughout the world.[55]

The combination of simulation and advance technology takes us into undreamed of possibilities such as George B. Leonard pictures in his article entitled "Visiting Day 2001 A.D." Here is a world,

> where Basic Domes house many children each sitting before a keyboard, essentially less complex than that of an old-fashioned typewriter, but fitted with a number of shifts so

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[54]House, op. cit., p. 2.

[55]Twelker, "Simulations: Status of the Field," op. cit., p. 29.

> that almost every symbol known to human cultures can be produced; where children are playing games that join what you might call math and logic with music and the sense of touch; where children are simulating the environment of space; where they are creating an even more exotic place, late nineteenth century America.[56]

No one can say for sure what the patterns of educational development will be like by the year 2000 A.D. But it seems obvious that simulation will play a large part in the education of the future.

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[56]George B. Leonard, "Visiting Day 2001 A.D.," Look, Vol. 32, No. 20 (October 1, 1968), p. 47.

CHAPTER III

DESIGN AND PROCEDURES

I. DESCRIPTION OF THE TWO METHODS

Students exposed to the simulation Constitution Today were each required to identify what they considered the best and the poorest parts of our Constitution. They were free to use whatever criteria they felt were the most significant. The whole group then proceeded to spend the next ten days formulating a class list of what should be considered the best and the poorest part of our Constitution. The object of the game is simply for each student to try and get the class to develop a list that is identical to his own.

The simulated environment is that of a democratically operated group decision process (This is the very essence of the Constitution). The roles the students find themselves in are the roles of participating members of this group each with a vested interest (similar to that of the representative in our own Congress). The game element is provided by a student receiving points when the group agrees with his decision. (Consult Appendix for detailed description of game.)

For ten days, students exposed to the lecture-discussion method were assigned a chapter each day to read in their textbook. No motivation was provided to encourage the students to read it, outside of the fact that they knew they would have a test at the end of the unit. During class a clear, concise lecture in outline form was presented. Some discussion would occasionally be stimulated by questions the

teacher asked or when a student took the initiative to ask questions of the teacher.

II. THE STUDENT ELEMENT

Two classes of students who were tenth graders attending Concordia Teachers College Laboratory High School in Seward, Nebraska, participated in this project. Seward is a small Midwest town with a population of approximately 4,000. However, Concordia Teachers College High School is a Lutheran college prep school that consists of 50% day students commuting from Seward and the rural area surrounding it and 50% dormitory students coming from all over the United States but predominantly from the out-state regions of Nebraska and other nearby states.

A pre-test of seventy items to determine any previous knowledge of America's Constitution was given the day before the unit was begun. This same seventy item test was given as a post-test immediately after the unit was taught to measure immediate learning.

In order to determine the nature of the students' attitudinal change towards the American Constitution, a pre- and post-test attitude survey was distributed before and after the unit was taught. The purpose of this test was to determine if there was a change in student attitudes towards what the investigator arbitrarily considered to be a desirable direction. This was determined by asking students to react before and after the unit was taught to a number of statements which expressed attitudes regarding the American Constitution. For some of the statements, strong agreement would indicate what the investigator considered desirable attitude, while for others strong disagreement indicated the desired response.

An attempt was also made to determine the students' attitudes toward the instructional process they were exposed to and to determine what they thought happened during those ten days of instruction by administrating another attitude survey test after the unit was completed. Again the students were asked to indicate their agreement or disagreement to a series of statements which expressed opinions about what had happened during the ten days of instruction. The degree to which the students agreed with the statements indicated the amount of positive reaction towards what they had experienced in the study of this unit.

Of the thirty-one students in the experiment, eighteen were in the experimental class and thirteen in the control group. The numbers in the groups were unequal due to the investigator's effort to arrange identical classes. As indicated in Table I, the IQ's (as measured by the Henmon-Nelson Test of Mental Abilities) and the grade point averages of the experimental group correspond very closely to that of the control group.

TABLE I

MEAN AND MEDIUM FOR INTELLIGENCE QUOTIENT AND GRADE POINT AVERAGES OF BOTH EXPERIMENTAL AND CONTROL GROUPS

	IQ Mean	IQ Medium	G.P.A. Mean	G.P.A. Medium
Experimental	119	120	2.97	3.08
Control	122	120	2.98	3.04

III. THE TEACHER ELEMENT

The writer taught both experimental and control groups. It is usually admitted in educational research that the teacher is a variable difficult to control. Hence, one might assume that the teacher variable should have less effect upon the results if the same person teaches both classes. The teacher had previously taught American history for five years at the secondary level and had experience in using both methods.

IV. THE TESTING PROCEDURE

Both of these methods were carried out in a period of ten teaching days. This included the days spent in testing before the unit was taught and after it was completed. The students were not told that they would be given the same tests at the end of the unit to measure their increase in knowledge and their change in attitudes.

CHAPTER IV

ANALYSIS OF THE DATA

I. CONTENT EXAMINATIONS

The content examination indicated a considerable increase in the amount of knowledge held by both the experimental and the control students. The experimental group increased their mean from 30.88 on the pre-test to 42.27 on the post-test, thereby giving them a mean gain of 11.38. The control group increased their mean from 31.92 on the pre-test to 44.69 on the post-test, giving them a mean gain of 12.76.

The groups and the number within each group, the mean for that group, and its standard deviation for the pre-content examination and for the post-content examination are indicated in Table II.

A "t" test analysis was used to determine if the mean gain difference between the control group and the experimental group was significant. The score was computed by dividing the difference between the control group mean gain and the experimental group mean gain by the product of the standard error and the small sample correction factor. With 29 degrees of freedom, the "t" score would need to be 2.045 for a .05 level of significance and 2.756 for a .01 level. The result of the test yielded a score of .563 which was far short of being a significant difference even at the .20 level.

TABLE II

CONTENT TEST

Control				Experimental			
Student	Pre-Test 1	Post-Test 2	Gain	Student	Pre-Test 1	Post-Test 2	Gain
1	31	47	16	1	34	48	14
2	27	41	14	2	26	27	1
3	36	32	- 4	3	34	44	10
4	22	41	19	4	44	39	- 5
5	29	47	18	5	27	38	11
6	35	48	13	6	40	54	14
7	22	32	10	7	30	48	18
8	37	56	19	8	38	49	11
9	51	53	2	9	26	44	18
10	29	46	17	10	35	41	6
11	37	49	12	11	24	46	22
12	33	39	6	12	23	41	18
13	26	50	24	13	23	36	13
				14	36	47	11
	415	581	166	15	23	34	11
				16	28	29	1
$\bar{X}$	31.92	44.69	12.76	17	39	54	15
				18	26	42	16
S.D.	7.42	7.06	7.40				
					556	761	205
				$\bar{X}$	30.88	42.27	11.38
				S.D.	6.51	7.36	6.70

II. SURVEY OF ATTITUDES TOWARDS AMERICAN CONSTITUTION

In order to determine statistically the change in students' reactions and attitudes towards the American Constitution, a pre- and post-test attitude survey was administered before and after the unit was taught. The purpose of giving this survey was to observe the changes in the attitudes of the students experiencing simulation as compared with those of the control group which were exposed to a traditional lecture-discussion method. This was determined by asking students to react to eighteen statements which expressed attitudes concerning the American Constitution. The first nine statements were ones to which the desired response was in the direction of disagreement. The last nine statements were ones to which the desired response was in the direction of agreement. Students were asked to circle a number one if they agreed strongly with the statements, a number two if they agreed, a number three if undecided, a four if they disagreed, and a five if they strongly disagreed. The pre- and post-means for each statement were calculated for both groups and then compared to find the amount of change. To determine the statistical significance of the changes, "t"- test analyses were used.

The results of the analysis are indicated in Tables III through V along with Figures 1 through 4, pages 47-53. Table III contains the information for the experimental group and is more clearly illustrated in Figures 1 and 2. Table IV contains the information for the control group and is more clearly illustrated in Figures 2 and 3. Table V lists those statements which indicated a statistically significant change in attitude.

TABLE III

MEAN, STANDARD DEVIATION, AND MEAN GAIN FOR EXPERIMENTAL GROUP ON THE PRE- AND POST-TEST SURVEY OF ATTITUDES TOWARDS AMERICAN CONSTITUTION

Statements	Pre-Test Mean	Pre-Test Standard Deviation	Post-Test Mean	Post-Test Standard Deviation	Mean Gain
Desirable Direction Was Towards Disagreement for Statements 1-9					
1	4.4	.76	4.6	.58	.2
2	4.3	.55	4.4	.47	.1
3	4.1	.65	4.4	.48	.3
4	3.9	.78	4.4	.47	.5
5	3.2	.84	4.3	.55	1.1
6	4.1	.78	4.7	.46	.6
7	4.1	.78	4.3	.46	.2
8	3.7	.64	4.1	.61	.4
9	4.3	.37	4.5	.60	.2
Mean	4.01		4.41	Mean	+.40
				S.D.	.28
				t-test	.53
Desirable Direction Was Towards Agreement for Statements 10-18					
10	3.4	.76	2.9	.98	-.5
11	2.1	.70	1.8	.62	-.3
12	2.0	.46	1.8	.52	-.2
13	1.6	.67	1.3	.44	-.3
14	1.4	.48	1.5	.50	+.1
15	2.3	.87	2.4	.82	+.1
16	1.8	.68	1.3	.50	-.5
17	2.0	.57	1.8	.68	-.2
18	2.6	.58	2.3	.80	-.3
Mean	2.13	.66	1.90	.57 Mean	-.23
				S.D.	.17
				t-test	.36

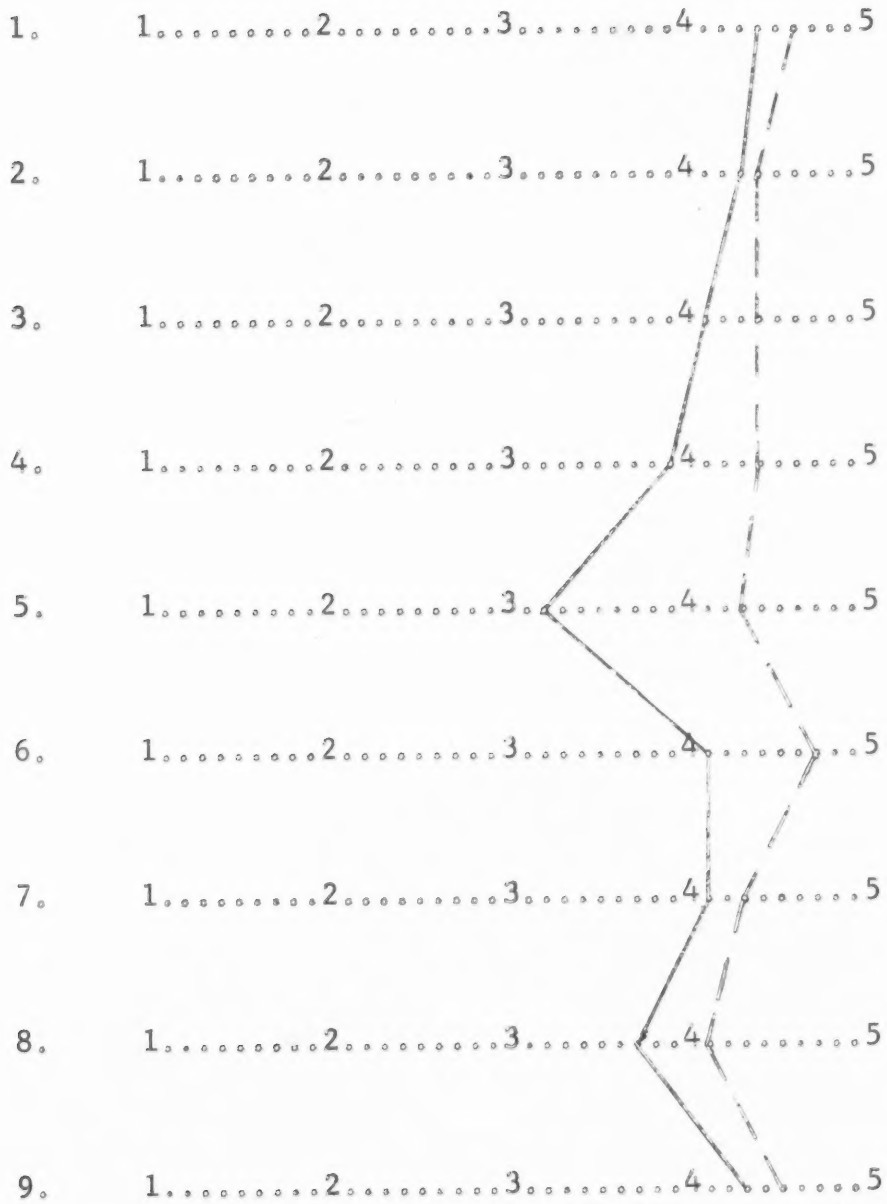

Figure 1. Experimental -- Disagree

——— Post Test
- - - Pre Test

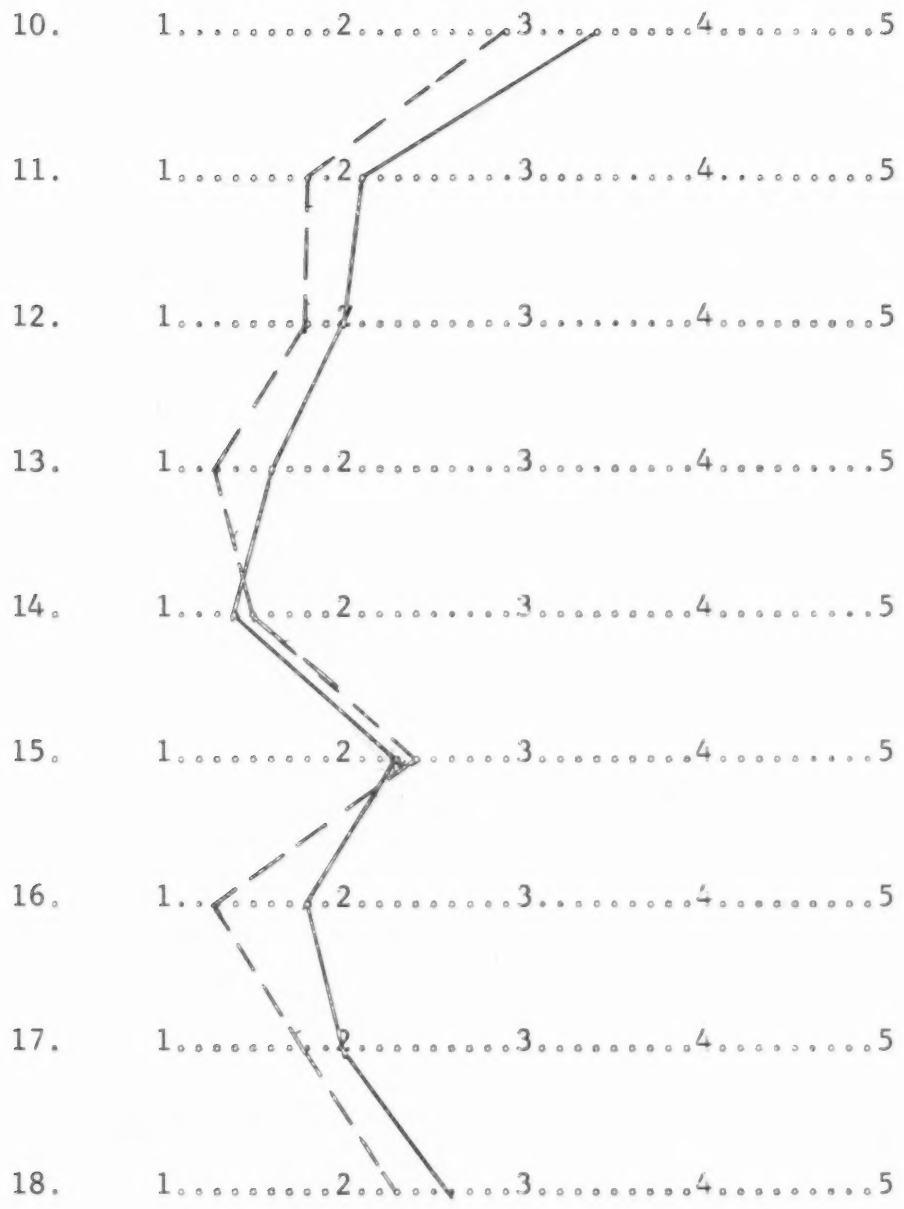

Figure 2. Experimental -- Agree

———Post Test
— — —Pre Test

TABLE IV

MEAN, STANDARD DEVIATION, AND MEAN GAIN FOR CONTROL GROUP ON THE PRE- AND POST-TEST SURVEY OF ATTITUDES TOWARDS AMERICAN CONSTITUTION

Statements	Pre-Test Mean	Pre-Test Standard Deviation	Post-Test Mean	Post-Test Standard Deviation	Mean Gain
Desirable Direction Was Towards Disagreement for Statements 1-9					
1	4.8	.41	4.8	.36	.0
2	4.2	.57	4.1	.72	-.1
3	3.5	.63	4.2	.57	.7
4	3.7	.81	4.2	.57	.5
5	2.5	.96	3.2	1.18	.7
6	3.9	.60	4.5	.50	.6
7	3.4	1.20	3.5	1.14	.1
8	4.0	.78	3.9	.53	-.1
9	3.8	.52	4.4	.47	.6
Mean	3.75		4.08	Mean	+.33
				S.D.	.30
Desirable Direction Was Towards Agreement for Statements 10-18					
10	2.9	.60	3.2	1.04	+.3
11	2.3	.90	1.8	.57	-.5
12	1.9	.91	1.5	.84	-.4
13	1.6	.62	1.5	1.08	-.1
14	1.8	.57	1.6	.47	-.2
15	1.6	.63	2.8	1.04	+1.2
16	2.5	1.00	1.7	1.50	-.8
17	2.5	.74	1.8	.66	-.7
18	3.0	.38	2.7	.60	-.3
Mean	2.23	.71	2.06	.77 Mean	-.16
				S.D.	.56

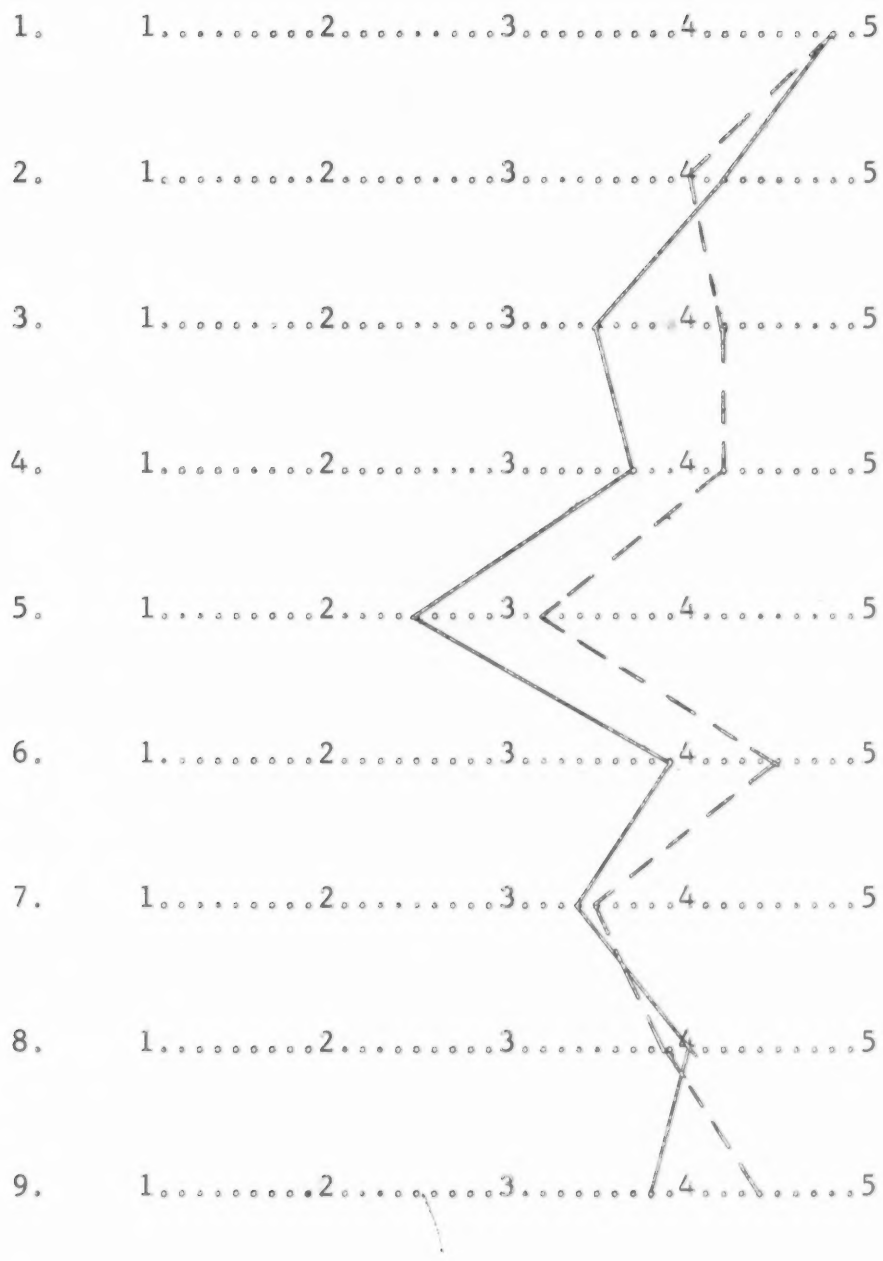

Figure 3. Control -- Disagree

———Post Test
— — —Pre Test

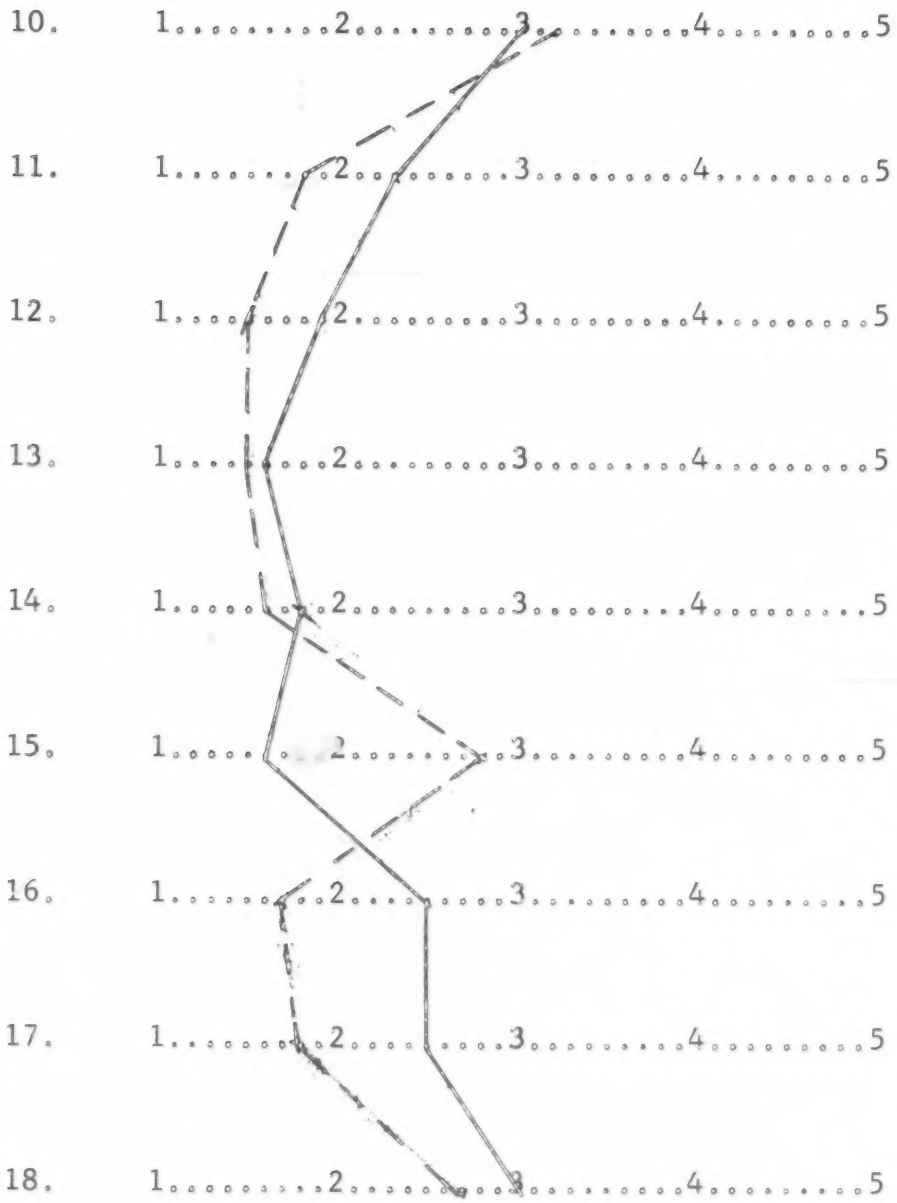

Figure 4. Control -- Agree

——— Post Test
— — — Pre Test

TABLE V

SIGNIFICANT T-SCORE VALUES BY STATEMENT AND GROUP RECORDED FOR THE SURVEY OF ATTITUDES TOWARDS AMERICAN CONSTITUTION

Statement	Experimental		Control	
	.05 Level	.01 Level	.05 Level	.01 Level
1				
2				
3				3.18
4	2.50			
5		5.00		
6		3.15	2.85	
7				
8	2.10			
9				3.33
10				
11				
12				
13				
14				
15				-3.75 (change in wrong direction)
16		2.77		
17			2.69	
18				
Total	2	3	2	2

The survey of attitudes towards the Constitution produced some significant statistical results. The experimental group showed a statistically significant change of attitude in the desired direction on five out of the 18 statements, twice at the .05 level, and three times at the .01 level. The control group showed a statistically significant change in the desired direction four out of 18 times, twice at the .05 level, and twice at the .01 level. In addition, they showed a significant change in attitude of 3.75 in the undesired direction.

The greatest shift in attitude recorded in this survey was the experimental group's reaction to statement five relative to the study of the Constitution being dry and boring. They had a mean change of 1.1 producing a t-test score of 5.00, which indicates that the experimental students certainly changed their mind about the Constitution being a dry and boring subject. The survey of attitudes towards the instructional process further supports this strong reaction.

On the other hand, the next to the greatest attitude shift was recorded by the control group's reaction to statement fifteen which was related to the danger of one losing their rights through indifference and ignorance. They had a mean change of 1.2 which produced a t-test score of 3.75. However, this change was in the undesired direction, indicating that there was a lessening of the attitude that citizens need to be concerned about protecting their rights.

Statement six which was related to the study of the Constitution being a waste of time was the only one on which both groups showed an attitude change that was statistically significant. However, the shift recorded for the control group was considerably less significant than that of the experimental group, who scored at the .01 level of signif-

Although in response to most of the statements, the shift in attitude is usually insignificant in a statistical sense; it is interesting to note that the experimental group shifted its attitudes in the desired direction on sixteen of the eighteen statements. Only two statements reflected a shift in the undesired direction, both of which were very small shifts of a change in the mean of only .1. On the other hand, the control group shifted its attitudes in the desired direction on fourteen of the eighteen statements and reflected a shift in the undesired direction four times, with one of these recording a mean change of 1.2 and being statistically significant at the .01 level with a t-score of 3.75.

It was more difficult for the experimental group to obtain large mean changes in desired directions since they indicated more desirable attitudes than did the control group on twelve of the eighteen pre-test statements. For example, the control group scored larger desirable mean changes on statements three, nine, eleven, twelve, fourteen, sixteen and seventeen than the experimental group. However, on each of these statements, with the exception of number twelve, the experimental group started with more desirable pre-test means and was able to maintain equal or more desirable post-test means.

On the first nine statements, which were designed for disagreement, the experimental group recorded a pre-test mean of 4.01 and a post-test mean of 4.41 for a mean shift of .40 in a desirable direction. In comparison the control group recorded a pre-test mean of 3.75 and a post-test mean of 4.08 for a mean shift of .33 in a desirable direction.

On the second nine statements, which were designed for agreement, the experimental group recorded a pre-test mean of 2.13 and a post-test

mean of 1.90 for a mean shift of .23 in the desirable direction, while the control group recorded a pre-test mean of 2.23 and a post-test mean of 2.06 for a mean shift of .16 in a desirable direction. It is interesting to note that both groups recorded greater attitudinal shifts on the statements designed for disagreement than on the ones designed for agreement. There was also a much stronger pattern of consensus on the disagree-type statement than on the agree-type. This is evidenced by the consistently larger standard deviations recorded for the agree-type statements.

Each statement contained on the attitude survey is listed on the following pages, followed immediately by the data obtained from the experiment for both the experimental and the control group. The first column indicates pre-test mean, the second the pre-test standard deviation, the third the post-test mean, the fourth the post-test standard deviation, and the last column shows the mean change between the pre- and post-test. On the line just below these data are indicated the results of the t-test analyses.

Desired Direction Was Towards Disagreement for Statements 1-9

Statement 1. The Constitution is not important enough and will not affect the average citizen enough for him to be concerned.

	Pre-test Mean	S.D.	Post-test Mean	S.D.	Gain
Experimental	4.4	.76	4.6	.58	.2
Control	418	.41	4.8	.36	.0

t-Test Neither group changed a statistically significant amount. The experimental group improved .2, while the control group remained at the same level. However, the control group was at 4.8 before the study began. This was a very strong level of disagreement and difficult to

increase. Although the experimental group improved .2, they were still .2 below the control group level after the unit was completed.

Statement 2. There is little reason for the average citizen to be informed about the Constitution.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	4.3	.55	4.4	.47	.1
Control	4.2	.57	4.1	.72	-.1
t-Test	Neither group changed a statistically significant amount.				

The experimental group changed position one in the desired direction, while the control group changed .1 in the opposite direction. Interestingly, statement one indicated that the Constitution affected our lives, while statement two referred to the importance of being informed about the Constitution. Although both groups indicated that the Constitution affected their lives, the control group did not seem to realize the significance of being informed about it. They seemed to assume the naive attitude that the Constitution was a clear and concise set of rules that automatically guaranteed our rights and, therefore, there was very little reason for the average citizen to be informed about it. The experimental group had experienced the loopholes and problems of interpretation from their game experience.

Statement 3. The Constitution protects the rights of the higher class more than it does the lower class.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	4.1	.65	4.4	.48	.3
Control	3.5	.63	4.2	.57	.7
t-Test	The control group scored a change of 3.18 which is significant to .01 level.				

Although the control group had a change of .7 which was significant to the .01 level, notice that the experimental group started with a 4.1 which is already a very strong degree of disagreement; the control group started with a 3.5. At the end of the unit, the experimental group was still .2 higher than the control group.

Statement 4. The Constitution protects the rights of the lower class more than it does the higher class.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	3.9	.78	4.4	.47	.5
Control	3.7	.81	4.2	.57	.5
t-Test	The experimental group scored 2.50, which is significant to the .05 level.				

Although both groups changed .5, only the experimental group indicated a change that was statistically significant due to the greater number of students in this group. The experimental group again started and finished .2 stronger than the control group. It is interesting to note that in both statements three and four, the experimental group disagreed more strongly than did the experimental group.

Statement 5. Studying the Constitution of America is dry and boring.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	3.2	.84	4.3	.55	1.1
Control	2.5	.96	3.2	1.18	.7
t-Test	The experimental group scored 5.00 which is significant to the .01 level.				

It is interesting to note that the experimental group's mean gain of 1.1

represented the largest positive change in the entire survey. Although the control group also showed one of its largest positive mean changes on this same question, they moved from a standard deviation of .96 to one of 1.18, indicating that this group did not have a strong consensus in their opinion. On the other hand, the experimental group moved from a standard deviation of .64 down to one of .55, indicating they had a strong consensus of agreement among their group. Note also that in both cases the pre-test mean for both groups was the lowest of all the first nine survey questions, thereby indicating that both groups had a strong negative mental set when they approached this unit.

Statement 6. A study of the Constitution is a waste of time.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	4.1	.78	4.7	.46	.6
Control	3.9	.60	4.5	.50	.6

t-Test: Both groups showed a significant level of changes. The experimental group scored 3.15 which was significant at the .01 level, and the control group scored 2.85 which was significant at the .05 level.

This was the only statement to which both groups made a positive change that was statistically significant. Both groups' reaction patterns were very similar. However, again we see evidence of converging group opinion in the experimental group. They started with a standard deviation larger than the control group and ended with a smaller one. Note also that the experimental group started and ended with a .2 higher mean than the control group.

Statement 7. The Constitution is more meaningful to a Negro living in Chicago than an Anglo-Saxon farmer living in Kansas.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	4.1	.78	4.3	.46	.2
Control	3.4	1.20	3.5	1.14	.1
t-Test	Neither group changed a statistically significant amount.				

Although neither group changed a statistically significant amount, the experimental group again showed a strong movement towards uniformity in class attitude with a shift from .78 S.D. to .46 S.D., while the control group showed only a slight convergence from 1.20 to 1.14 both of which represent an extremely wide divergence in individual reactions.

Statement 8. The United States Constitution has little or no meaning to aliens.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	3.7	.64	4.1	.61	.4
Control	4.0	.78	3.9	.53	-.1
t-Test	The experimental group scored a change of 2.10 which was significant at the .05 level.				

While the experimental group indicated a change in the desired direction at the .05 level of significance, the control group moved slightly in the undesired direction.

Statement 9. The average man on the street gets very little benefit from the Constitution of the United States.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	4.3	.37	4.5	.60	.2
Control	3.8	.52	4.4	.47	.6
t-Test	The control group scored a change of 3.33 which was significant at the .01 level.				

Although the control group showed a greater amount of change, the experimental group still had a higher post-test mean. This was the only instance in the first nine statements where the experimental group moved from small standard deviation to larger standard deviation, indicating a wider range of reaction to the statement. This might reflect the variety of experiences the students had in the simulation. Some became aware of the use of loopholes and how interpretations could be twisted around to suit one's own needs.

Desired Direction Was Towards Agreement for Statements 10-18

Statement 10. Our Constitution needs to be changed.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	3.4	.76	2.9	.98	-.5
Control	2.9	.60	3.2	1.04	+.3
t-Test	Neither group changed a statistically significant amount.				

Again the control group moved in the undesired direction. It may well be that the control group formed a more simple and academic view of the Constitution and what functions it performs while the experimental group found real problems in trying to apply the Constitution to the problems

of today. However, the statement was very ambiguous and poorly worded, thereby leaving the students to read in what was meant by "needs to be changed." This is clearly reflected in the large change of both groups' standard deviations.

Statement 11. People should spend more time studying the Constitution.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	2.1	.70	1.8	.62	-.3
Control	2.3	.90	1.8	.57	-.5
t-Test	Neither group changed a statistically significant amount.				

Although the control group had the greatest amount of change, again the experimental group reflected the same level on the post-test survey (1.8).

Statement 12. The Constitution affects our daily lives a great deal.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	2.0	.46	1.8	.52	-.2
Control	1.9	.91	1.5	.84	-.4
t-Test	Neither group changed a statistically significant amount.				

The control group had twice the amount of change that the experimental group did. However, the experimental group again showed a smaller standard deviation.

Statement 13. It is important that the Constitution be able to be changed as time goes along.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	1.6	.67	1.3	.44	-.3
Control	1.6	.62	1.5	1.08	-.1
t-Test	Neither group changed a statistically significant amount.				

The experimental group showed a .2 larger change than the control group. While the control group moved from a standard deviation of .62 to 1.08, the experimental group moved from .67 to .44, thereby showing a strong convergence on the part of the experimental class and a large divergence on the part of the control class.

Statement 14. The Constitution protects the rights of American people.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	1.4	.48	1.5	.50	+.1
Control	1.8	.57	1.6	.47	-.2
t-Test	Neither group changed a statistically significant amount.				

This is the first case in which the experimental group moved in the undesired direction. It may well be that because of their experiences with the difficulty of interpretation and dealing with value conflicts that arise, the experimental group was more ready to entertain the prospect that the American Constitution is not foolproof, while the control group may have formed a more superficial view.

Statement 15. Through indifference and ignorance, our fundamental rights might be lost.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	2.3	.87	2.4	.82	+.1
Control	1.6	.63	2.8	1.04	+1.2
t-Test	The control group scored a change of 3.75 which was significant at the .01 level.				

Both groups scored changes in the undesired direction. For all practical purposes, the experimental group remained the same. Even the standard deviation had very little change. However, the control group moved 1.2 in the undesired direction. This may be partly due to the fact they started at 1.6, but perhaps more because they again did not see the implications and application that the experimental group did. After becoming acquainted with the Constitution, they may have felt that it took care of everything.

Statement 16. Article V (how to amend) is one of the most important parts of the Constitution because it makes the Constitution useful in a modern world.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	1.8	.68	1.3	.50	-.5
Control	2.5	1.00	1.7	1.50	-.8
t-Test	The experimental group scored a change of 2.77 which was significant at the .01 level.				

Although the control group actually changed .3 more than the experimental group, it was not as significant as the experimental group due to the large variation represented by the standard deviations of 1.00 and 1.50. Also, it can be noted that the experimental group achieved .4

better than the control group in spite of their large degree of change. However, the experimental group started at about the same place that the control group finished (1.7).

Statement 17. More time in school should be spent in gaining an understanding of the Constitution.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	2.0	.57	1.8	.68	.2
Control	2.5	.74	1.8	.66	.7
t-Test	The control group scored a change of 2.69 which was significant at the .05 level.				

Although the control group made a significant gain, both groups ended up with the same level (1.8). The control group, however, started with a 2.5, while the experimental group started with 2.0.

Statement 18. The due process clause of the Constitution is one of the most important aspects of the document.

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	Gain
Experimental	2.6	.58	2.3	.80	.3
Control	3.0	.38	2.7	.60	.3
t-Test	Neither group changed a statistically significant amount.				

Note that while both groups improved their attitudes, they also increased the amount of variation in their responses. Both groups had very similar patterns.

III. SURVEY OF ATTITUDES TOWARDS THE UNIT ON CONSTITUTIONAL STUDY

In order to determine statistically the students' reactions and attitudes toward the instructional process they experienced and to determine what they thought happened during those ten days of instruction, a post-test attitude survey was administered after the unit was taught. The purpose of giving this survey was to record the attitudes of the students experiencing simulation as compared with those of the control group which were exposed to a traditional lecture-discussion method. This was determined by asking students to react to a series of sixteen statements which expressed opinions about what had happened during the ten days of instruction.

The degree to which the students agreed with the statements indicated the amount of positive reaction towards what they had experienced in the study of this unit. Again the number one indicated a strong agreement, the two agreement, the three undecided, the four disagreement, and the five strong disagreement.

The class mean on each statement was calculated for both groups and then compared to find the amount of difference. The statistical significance of the differences was determined by using "t"-test analyses. The results of the analyses are indicated in Tables VI and VII shown on pages 67 and 69 along with Figure 5 as shown on page 68. Table VI contains the information for both groups and is more clearly illustrated in Figure 5. Table VII lists those statements which indicated a statistically significant difference between the experimental and control group.

TABLE VI

MEAN, STANDARD DEVIATION, AND MEAN GAIN FOR CONTROL GROUP AND EXPERIMENTAL GROUP ON POST-TEST SURVEY OF ATTITUDES TOWARDS INSTRUCTIONAL PROCESS

Statement	Control Group Mean	Control Group S.D.	Experimental Group Mean	Experimental Group S.D.	Mean Diff.
1	1.8	.80	1.5	.50	.3
2	2.4	.47	2.1	.80	.3
3	2.0	.38	1.7	.46	.3
4	1.3	.92	2.0	.66	.7
5	1.9	1.20	2.5	.95	.6
6	2.1	1.14	1.5	.60	.6
7	1.9	.82	1.8	.62	.1
8	3.5	1.21	1.9	.65	1.6
9	3.2	.96	1.7	.57	1.5
10	3.8	1.16	1.4	.47	2.4
11	2.3	.81	1.7	.61	.6
12	1.9	.99	1.8	.78	.1
13	1.8	.57	1.8	.78	.0
14	3.4	1.22	1.3	.48	2.1
15	2.2	.76	1.5	.50	.7
16	3.5	1.23	1.6	.60	1.9
Mean	2.43	Mean	1.73	Mean	.70
S.D.	.73	S.D.	.07	S.D.	.75
				t =	3.74

MEAN GAIN FOR CONTROL AND EXPERIMENTAL GROUPS

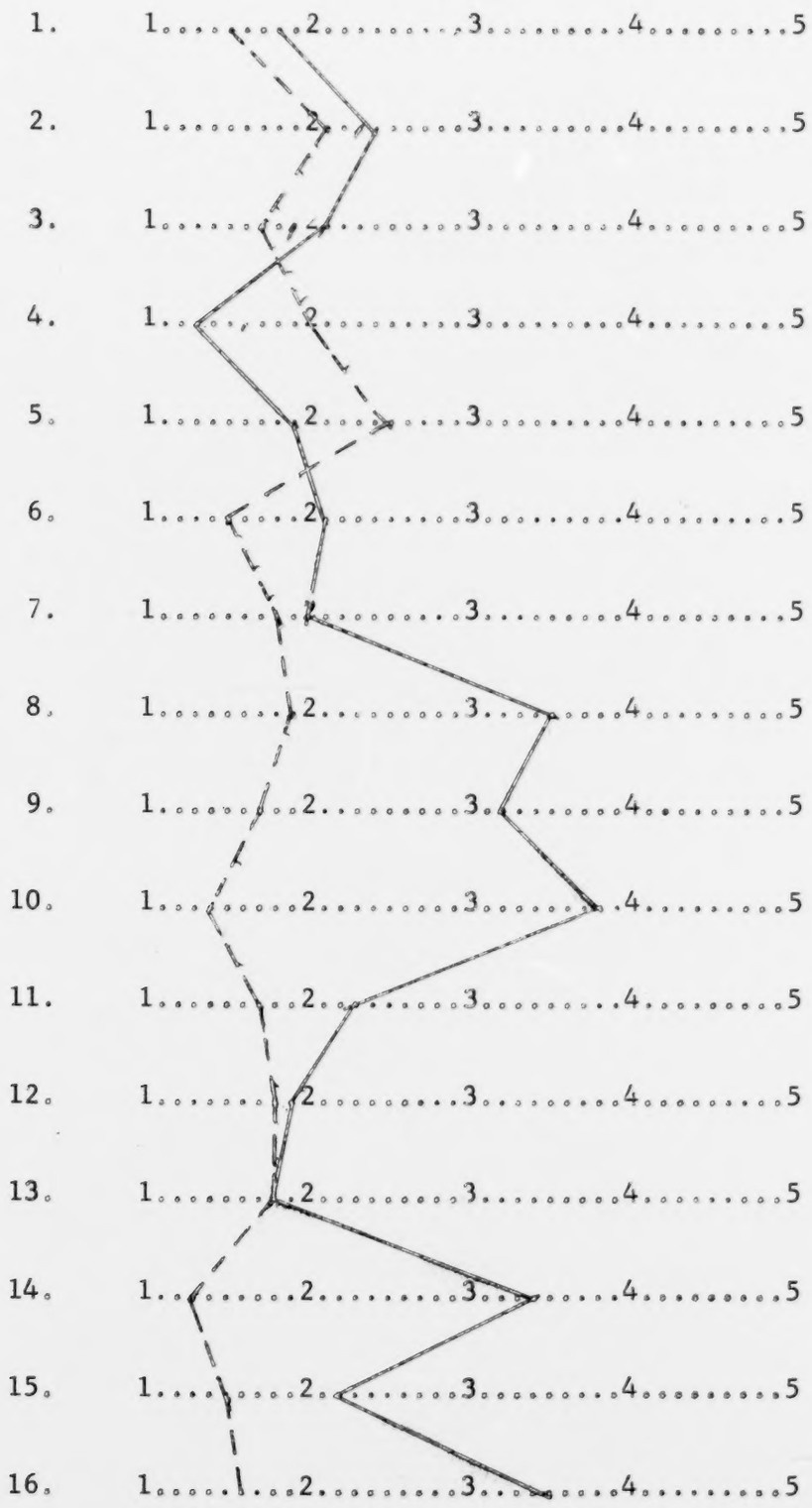

Figure 5

– – – control ——— experimental

TABLE VII

SIGNIFICANT T-SCORE VALUES OF THE MEAN DIFFERENCE BETWEEN THE CONTROL AND EXPERIMENTAL GROUP FOR THE SURVEY OF ATTITUDES TOWARDS THE INSTRUCTIONAL PROCESS

Statement	Experimental Larger		Control Larger	
	.05 Level	.01 Level	.05 Level	.01 Level
1				
2				
3	2.14			
4			2.59	
5				
6				
7				
8		5.00		
9		5.76		
10		8.57		
11	2.50			
12				
13				
14		7.00		
15		3.33		
16		6.12		
Total	2	6	1	0

The survey of attitudes towards the unit on constitutional study produced numerous significant statistical results. The mean difference between the experimental and control groups proved to be statistically significant on nine of the sixteen statements. The experimental group showed stronger agreement on eight of these; six times at the .01 level; and twice at the .05 level. The control group showed stronger agreement on only one statement and at the .05 level.

Below are listed in rank order the eight statements on which the experimental group had a statistically significant larger mean difference:

8.57	Statement 10.	This approach to the study of the Constitution was stimulating to our creative thinking.
7.00	Statement 14.	A study of the Constitution by this method was interesting.
6.12	Statement 16.	A study of the Constitution by this method was enjoyable.
5.76	Statement 9.	The students were involved in the learning situation during this unit.
5.00	Statement 8.	The students were usually alert and attentive during this unit.
3.33	Statement 15.	A study of the Constitution by this method was meaningful.
2.50	Statement 11.	The instruction was to our level and could be followed readily by most members of the class.
2.14	Statement 3.	This unit has helped me to become more aware of my rights as a citizen.

The only significant difference in favor of the control group was on statement four. (This unit has helped me to understand how the Constitution applies to my everyday life.) On this statement the control group recorded a mean of 1.3, while the experimental group recorded a mean of 2.0 which gave the control group a mean difference over the

experimental group of .7. This difference proved to be significant at the .05 level with a t-test score of 2.59.

Although the other seven statements did not prove to have any statistically significant difference between the two groups, it is interesting to note that on five of those seven statements the experimental group showed a stronger agreement than did the control group. These statements are listed below in rank order by the amount of mean difference between the two groups.

.6	Statement 6.	The teacher seemed interested in studying the Constitution.
.3	Statement 1.	This unit has helped me to appreciate the Constitution.
.3	Statement 2.	This unit has helped me to become more aware of my responsibility as a citizen.
.1	Statement 7.	The teacher was well informed and demonstrated a broad and accurate knowledge of the subject.
.1	Statement 12.	Assignments in this system were clear.

The only statement, other than number four, on which the control group showed a stronger degree of agreement was number five. In this case the mean difference was .6, just .1 less than the mean difference on statement four which proved to be a statistically significant difference in favor of the control group. However, on statement six the control group's standard deviation was up to 1.20, thereby lessening the significance of the mean difference.

Statement thirteen (Assignments in this system were reasonable) was the only one on which both groups recorded identical ratings (1.8).

It is interesting to note that on fourteen of the sixteen statements the experimental group's means fell between agree and strongly agree. Only on statements two and five did they score more than 2.0.

On the other hand, only six of the control group's means fell between agree and strongly agree. Five times they fell between undecided and agree, and five times they fell between undecided and disagree.

The strongest degree of agreement recorded by the experimental group was 1.3 on statement fourteen (about this method being interesting) and the next strongest being statement ten (about stimulating creative thinking) on which they recorded a 1.4. Their weakest degree of agreement was 2.5 which they recorded on statement five (about the objectives being obvious).

The strongest degree of agreement recorded by the control group was 1.3 on statement four (about the Constitution applying to everyday life) and the next strongest being statements one (about appreciating the Constitution) and thirteen (about assignments being reasonable) on both of which they recorded a 1.8. Their weakest degree of agreement was 3.8 which they recorded on statement ten (about stimulating creative thinking). Interestingly enough, statement number ten had the second strongest agreement for the experimental group.

The standard deviations show a very strong pattern of consensus on the part of the experimental group with all deviations remaining under 1.0. However, the control group recorded a great deal of variation with six deviations running over 1.00 and four of them running into the 1.20's.

Finally, it may be pointed out that in the overall results of the sixteen statement survey, the experimental group recorded a mean of 1.73, while the control group only registered a 2.43, resulting in a difference of .70 between the two groups. This difference proved to be statistically significant to the .001 level with a t-test score of 3.74.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

This chapter is devoted to a short restatement of the procedure and findings of the study and forming some qualitative conclusions and logical implications from those findings.

Both the lecture-discussion method and the simulation game method were carried out in a period of ten teaching days. A pre- and post-test of 70 items was administered to measure the amount of immediate learning. In order to determine the nature of the students' attitudinal change towards the American Constitution, a pre- and post-test attitude survey was distributed before and after the unit was taught. Another attitude survey test was administered after the unit was completed for the purpose of determining the students' attitudes toward the instructional process they were exposed to, and to determine what they thought happened during those ten days of instruction.

This study provided no statistical evidence to support the hypothesis that simulation games enhance the ability of the student to acquire more factual and conceptual knowledge. In fact, the evidence indicates that the control group performed slightly better on the content tests than did the experimental sample. On the pre-content examination, a comparison of the mean scores indicated the control group performed better than the experimental group by 1.04 (in a total of 77 points). At the end of the unit of instruction, the comparison of the mean scores on the same test indicates the control group outperformed the experimental group 44.69 points to 42.27 points, a difference of

2.42. In other words, the control group made a mean gain on the experimental group of 1.38 points. This is a very insignificant difference.

The point that should be remembered here is that the experimental group was required to learn more information in the same amount of time (both the rules of the simulation game and the substantive knowledge of the Constitution) than was the control group (which was not burdened with the necessity to learn any information other than the substantive knowledge to be tested). Furthermore, the experimental group had no specific direction as to what they should learn about the Constitution. The knowledge they gained was determined by the particular research they did to support their viewpoint and by the knowledge acquired in the interchange of classroom debates. The control group, on the other hand, knew that the material in the test would be taken from the class notes and reading assignments.

In spite of these advantages, the control group was only able to outdo the experimental group by 1.38 points mean gain. The implication is that although the simulation game certainly did not cover as many facts, the ones the students did acquire were better remembered and perhaps better understood. Furthermore, the experimental students did not all gain the same factual knowledge; but rather, each student tended to acquire those facts which were relevant to his needs. This acquisition of information to fill a need or serve a purpose for the learner could well support the hypothesis that he internalized the knowledge more than the students in the control group.

One may say that the requirement of learning the rules of the simulation game was unnecessary or wasteful as it detracted from the time the student could spend acquiring knowledge, and it is not informa-

tion that will be useful to the student in later life. This argument contends that simulation has no usefulness because it requires the student to learn a "new language" before he can practice using the knowledge he is supposed to learn. Such a criticism misses the importance of simulation as a technique for learning valuable process skills. The importance of learning the "new language" is equal in importance to learning the rules necessary to operate any complex mechanism. The operations conducted by the student in simulation require him to employ essentially the same skills that he will later employ as a citizen of a community. The "new language" is not a useless one, but one of which major elements will be used in the later social and political life of the student. Participants in simulation games learn about processes like decision-making, resource allocation, communication, persuasion, influence-resisting, and how important those processes are. They also learn about the rational and emotional components of these process skills.[1]

A comment should be made concerning the type of testing which was employed in this experiment for measuring changes in factual and conceptual knowlege. The content examination was composed of 77 multiple choice items. This type of test is more likely to emphasize to the student the importance of learning facts than of learning the relationship of concepts. It is also likely to test principally the recognition and recall ability rather than the higher levels of cognitive processes such as synthesis, analysis, and evaluation. It would have been desirable

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[1]R. Stadsklev, "Simulation: What Is It and What Can It Do." Unpublished paper presented at NSF Conference, Pueblo, Colorado, February, 1969.

to provide essay examination questions which would have enabled the investigator to make some judgments as to which method leads to greater accumulation of conceptual knowledge.

Simulation games may not produce any better results in content knowledge gained than lecture-discussion methods, but it definitely established its increased effectiveness in dealing with attitudes and emotions. In the survey of attitudes towards the Constitution, the experimental group showed a noticeably greater shift of attitudes in the desired direction than the control group. They showed a statistically significant change in the desired direction on five out of eighteen statements, while the control group did the same on four of the eighteen statements. The experimental group shifted its attitudes in the desired direction on sixteen of the eighteen statements. Only two statements reflected a shift in the undesired direction, both of which were very small shifts of only .1 mean change. The control group shifted its attitudes in the desired direction on only fourteen of the eighteen statements and reflected a shift in the undesired direction four times, with one of these recording a mean change of 1.2 and proving statistically significant at the .01 level with a "t" score of 3.75.

Of course, it is true that in this experiment the investigator was arbitrarily deciding what is a desirable attitude and what is an undesirable attitude. However, the purpose of this investigation was not to resolve the problem of value clarification, but simply to determine if simulation games prove to be more effective in influencing attitudes and opinions than lecture-discussion methods. Furthermore, the majority of the attitudes that this study considered desirable were supported by a strong general concensus of our society.

It seems safe to conclude from the analysis of this survey that the simulation game did help to improve the students' attitudes toward the American Constitution. The writer believes there is ample evidence to also support the conclusions that the experimental group developed a more realistic attitude towards the Constitution. For example, on statement fifteen (through indifference and ignorance, our fundamental rights might be lost) the control group moved strongly in the direction of disagreement. In other words, they could not see any danger to Americans losing their basic right and freedom. It would seem that after studying the Constitution and what it means, they simply assumed the attitude, "It says so right here in the Constitution, so what's there to worry about." Whereas, the experimental group penetrated certain aspects of the Constitution in more depth as they sought to gain evidence to support their positions. As they listened to their own classmates make various interpretations and applications, they learned how greatly the meaning of what is said in the Constitution depends upon who is interpreting and applying it.

This indication is further supported by the fact that the experimental group attached more importance to the need for being able to modify or change the Constitution from time to time. This is evidenced by the results of statements two, ten and sixteen. In statement two (there is little reason for the average citizen to be informed about the Constitution) the experimental group only moved .1 in the desired direction; however, the control group moved .1 in the undesired direction. On statement ten (our Constitution needs to be changed) the experimental group moved .5 in the desired direction, while the control group moved .3 in the undesired direction. In statement sixteen (about how important it is to be able to amend the Constitution) although the control group scored a .8 change in the desired direction, while the experimental group only recorded a change of .5, it should be noticed that the

experimental group's mean change was statistically significant to the .01 level with a t-test score of 2.77, while the control group's .8 change did not prove statistically significant due to the large standard deviation of 1.00 and 1.50.

A comparison of the two groups' standard deviations leads one to conclude that simulation game experience tended to unify the attitudes of a group, while the lecture-discussion experience tended to increase the variations within the group. On the pre-test survey, the experimental group had a mean standard deviation of .66 and on the post-test, their mean deviation was .57. On the other hand, the control group recorded a mean standard deviation of .71 on the pre-test and went up to a mean standard deviation of .77 on the post-test. In the lecture-discussion group, the students were exposed to the same information, but they each interpreted it differently in their own mind by various experiences they had been exposed to, most of them from outside the classroom. However, the experimental group were not all exposed to the same set of facts and information, but they all did have a common experience in which they shared their knowledge and opinions. This common experience and sharing of ideas and experiences clarified their thinking and brought about a strong general consensus among the class.

In the survey of attitudes towards the unit on constitutional study, the experimental group showed an amazingly more positive reaction to their experience than did the control group. The mean difference between the experimental and control groups proved to be statistically significant on nine of the sixteen statements. The experimental group showed stronger agreement than the control group on eight of these, six times at the .01 level, and twice at the .05 level. The control group

showed stronger agreement on only one statement and at the .05 level. On five of the other seven statements, the experimental group showed a stronger agreement than did the control group. On fourteen of the sixteen statements, the experimental group's means fell between agree and strongly agree. Only twice did they score more than 2.0. Only six times did the control group's means fall between agree and strongly agree. Five times they fell between undecided and agree, and five times they fell between undecided and disagree. Totaling all sixteen statements together, the experimental group recorded a mean of 1.73, while the control group only registered a 2.43, resulting in a difference of .70. This difference proved to be statistically significant to the .001 level with a t-test score of 3.74.

The experimental students said that this instructional experience had been interesting, enjoyable, meaningful, and that the students were alert, attentive, and involved in the learning situation. Above everything else, they agreed most strongly with the statement that this learning situation had stimulated their creative thinking.

The control students, on the other hand, were saying that this experience was somewhat meaningful but not interesting or enjoyable. The students were not alert, attentive, or involved in the learning situation and, above all, it certainly was not stimulating to creative thinking.

In connection with the analysis of both the survey of attitudes towards the unit on constitutional study and the survey of attitudes towards the American Constitution, one interesting but inexplicable finding emerged. On the survey of attitudes towards the unit on constitutional study, only once did the control group score a stronger level

of agreement than did the experimental group that was statistically significant. This was on statement four (this unit has helped me to understand how the Constitution applies to my everyday life). On this statement the control group scored a 1.3, while the experimental group only recorded a 2.0. This reaction is also evidenced in the survey of attitudes towards the Constitution. On statement twelve (the Constitution affects our daily lives a great deal) the control group moved from a 1.9 down to a 1.5, giving them a change in the desired direction of .4, while the experimental group moved from a 2.0 down to 1.8, giving them a change of only .2. Also, on statement nine (the average man on the street gets very little benefit from the Constitution of the United States), while the experimental group moved from a 4.3 to a 4.5, recording a desirable change of .2, the control group moved from 3.8 to 4.4, recording a desirable change of .6 which proved to be a statistically significant change at the .01 level. Perhaps this has some connection to a more naive viewpoint of the control group. However, additional research would be needed to determine what the relationships may be and their significance.

Nevertheless, subjective evaluation of the survey of attitudes towards the unit on constitutional study indicates conclusively that the students involved in the simulation techniques were far more involved and stimulated than were the control students. Furthermore, they also obtained far greater enjoyment from their classroom experiences than did the subjects of the control group. Perhaps this finding holds the most significant implication of the whole study. If simulation-gaming creates a positive attitude towards learning, it has helped to attain a very high goal. In addition, it should be remembered that simulation-

gaming appears to be a more effective method of dealing with affective domain and still produced relatively as much content achievement as the old lecture-discussion method. The implication, therefore, is that teachers should be making an effort to understand this method and become proficient at employing it in their classes. It also goes without saying that college method classes should be devoting significant attention and effort to this technique.

As in the survey of attitudes towards the Constitution, a comparison of the two groups' standard deviations leads to the conclusion that the simulation game experience tends to unify the attitudes of the group. This time all the standard deviations of the experimental group were less than 1.0, while the control group recorded six standard deviations over 1.00 and four of them running into the 1.20's.

Simulation games seem to indicate that they can be powerful tools for influencing attitudes and value in the direction one desires to move them. Education has always been involved in trying to influence students' thinking. Perhaps, educators finally have a teaching technique that may enable them to get into the affective realm and have significant influence in determining attitudes and values. The big moral implication of this is: who or how does society determine what are desirable attitudes and values? In the past, as long as teachers were just standing in front of the class talking at students and having only an insignificant effect on their attitudes or values, this question was not of much concern. However, as educational pioneers begin to open a new dimension in the educational frontier that promises to be a potent power in influencing attitudes and values, society is beginning to ask this question more and more loudly. It is a good question.

CHAPTER VI

RECOMMENDATIONS FOR FURTHER STUDY

In the course of this study, several findings indicate a need for further investigation. There are also many topics beyond the scope of this investigation that appear to have potential value.

1. In this study it was pointed out that the experimental students needed first to learn a "new language" before they could begin to function properly. It is tempting to postulate that once the requisite skill had been acquired, the mean learning curve of those participating in simulation would ascend more rapidly than the corresponding curve of the non-participants. With the development of instruments to measure adequately the acquisition of knowledge and skill, such learning curves could be plotted and data could be secured concerning the effect of recency, frequency, and repetition of material. Such a program should encompass a minimum of one academic year, and preferably it should include several consecutive years.

2. This experiment gave no consideration to the retention factor. It would have been desirable to conduct a similar study and include post-tests several weeks after the unit was completed to see if there would be any discernible difference in retention.

3. It would have been interesting to conduct an investigation where the content test included essay questions to test the hypothesis that simulation leads to a greater accumulation of conceptual knowledge than does the lecture-discussion method due to the fact that the students have gained their information in a more meaningful context.

4. What results would be produced from a comparative study of the effect of simulation on the low achiever and the high achiever?

5. It would have been valuable to determine the intensity of an attitude change by conducting a study which would look for an effect in their daily lives.

6. Another finding which could form the basis of an interesting and valuable study would be the relationship between statements that are expressed in a positive form and statements that are expressed in a negative form. In this study it was found that there was considerably more consensus among both groups on the disagree type questions than on the agree type. It was also shown that a larger attitudinal shift occurred on disagree type questions than on the agree type. Do students have a built-in tendency to want to disagree rather than agree?

APPENDIX A

CONSTITUTION TODAY

Game With Notes for Teachers

Ronald Stadsklev 1/30/69

"CONSTITUTION TODAY"
(A Social Simulation)

Preparation for Playing:

Students are given an annotated copy of the Constitution with amendments and told that within the next three days they should try to read this and think about what they consider to be its good and bad features. Also point out that a number of books dealing with the explanation and application of the Constitution have been placed on reserve in the school library for further research if they so desire. They should be informed that this assignment is in preparation for playing a simulation called "Constitution Today," and that the more familiar they become with the Constitution and what it means the better they will be able to participate in the game.

Preparation of Student Commitment Sheet:

On the fourth day, students should be given the entire period to plan and prepare their Student Commitment Sheet. If at all possible, a double class period should be arranged for this day.

1. First the class is divided into two parts - each student in one half of the class will make a list of what he considers to be the four best parts of the Constitution and number them in the order of importance, while each of the students in the other half will do the same regarding what they consider to be the poorest four parts.

2. Each student must work alone - no discussion is allowed during this period.

3. In choosing what parts of the Constitution or amendments they will place on their lists, students must use the smallest designation possible. In other words, the parts of the Constitution and amendments they select for their lists must be indicated by Article, Section, and Paragraph as illustrated in the following example: (Article 4, Section 3, Paragraph 8.) In some cases this will not be possible since some sections are not subdivided into paragraphs and some articles are not even subdivided into sections.

4. There is no set criteria for determining what is good and what is poor. The student is free to base his decisions of good and poor on what ever criteria he thinks is most important. However, in class discussion periods he should be ready to convince others that his criteria for selection is the most significant one.

5. The student will remain committed to this list throughout the entire game. During this preparation period, two copies of the list will be made and at the end of the period one copy will be filed with the teacher as the student's official Commitment Sheet.

6. During this period a good number of books that help to explain the Constitution and give examples of application should be available for student use. After this period is over, these books should be placed back on the reserve shelf of the library for furt ·r reference. It may be a good idea to bring these books into the classroom each day during the simulation period.

7. It is not necessary for the student to write out a justification for his choices on the Commitment Sheet. However, he should be ready to defend his position the next day when the first round of discussions begins.

8. Before leaving the class, students must be informed that during the time we are playing Constitution Today it will be necessary for students to sit in the same seat every day.

Procedures for Playing:

The class will now proceed to formulate a class list of what should be considered the four best and the four poorest parts of our Constitution. The object of the game is simply for each student to try and get the class to develop a list that is identical to his own.

1. The chairman of the meeting (usually the teacher) declares that the floor is now open for nominations for number 1 (most important) on the class list of best parts of the Constitution.

2. Anyone can make a nomination, but there must be a second before it is placed on the list of nominations. The student making the nomination is usually asked to read the section he is nominating.

3. After the nomination has been made and seconded, the person who made it has 15 seconds to deliver a nomination speech if he so desires.

4. Nominations continue until there are no more nominations to be made.

5. We then begin our first round of discussion. Each student will in turn be given the opportunity to speak for one minute if he wishes to do so. The turns will move from front to back in each row and from the row farthest on the left to the row farthest on the right.

6. Once the discussion has past an individual student he cannot speak again until his turn comes around again, or unless someone else yields part of their time to him.

7. During the 60 seconds that an individual student has the floor, he may allow any one else to speak whom he desires. However, he reserves the right to also discontinue their opportunity to speak at any time he wishes to do so. At any time he may yield his remaining time back to the chair, at which point the chair then proceeds to the next speaker in line.

8. After we have moved through the entire class three times in succession using the above procedure we are ready to call for a vote on the first ballot.

9. If after the first ballot is taken, no one nomination has majority, we will retain those nominations with the highest number of votes and which together constitute a majority of the votes cast, and proceed to a second round of discussion.

10. However, a two-minute recess is declared before beginning the second round. At this time the students are free to move around the room and caucus. This is when the students usually engage in extensive log-rolling and some efforts at bribery are sure to be made.

11. After two minutes the meeting is again called to order and the same procedure that was used in the first round discussion is followed in the second with the following changes: (1) a speaker will have the floor for only 45 seconds, (2) this time we will take turns moving from the right side of the room to the left, and (3) we will go through the class only twice this round.

12. After the second round of discussion, a second ballot is taken. If still no single nomination has a majority of the votes, we will follow the same procedure that was used in the first round discussion with the following changes: (1) a speaker will have the floor for only 30 seconds, (2) we will start the discussions at the left again and move to the right, and (3) we will move through the class only once this time.

13. After we have succeeded in getting a number one on the class list of good examples, we will proceed to obtain the number one example of our class list of poor examples by following the same procedure as outlined above.

14. After the class has decided on what they consider to be the four best and the four poorest parts of the Constitution we are ready to score the student's Commitment Sheet.

Procedures for Scoring:

1. A student will receive three points for any selection on his list that is on the class list and rated the same number in importance.

2. A student will receive two points for any selection on his list that is on the class list but is rated higher on the class list than it was on his own.

3. A student will receive one point for any selection on his list that is on the class list but is rated lower on the class list than it was on his own.

4. There are 12 points possible.

"Constitution Today"

NOTES FOR TEACHERS

Procedural Aspects and Their Effects:

1. It would be highly desirable for the students to have had previous successful experiences with simulation. The students will be strongly motivated to read and study the Constitution when they are told it is in preparation for a simulation, if they have already had a successful experience with simulation.

2. To guard against students becoming bored with the procedure before the class lists are compiled, it is suggested that the student does not list more than four selections on the Commitment Sheet. In some cases it may be a good procedure to limit the list to three selections.

3. Great care should be taken to guard against the students forming clicks before their Commitment Sheets are prepared. This is why we do not tell the students exactly what is expectd of him before the period when he is required to prepare his Commitment Sheet and why we allow no discussion during the time that he is developing his Commitment Sheet. They must look for their allies after they have made their own decisions and committed themselves to a position. In this manner each student is forced to think for himself, support his own thinking, devise his own criteria of evaluation, and is actively engaged in practicing such skills as decision-making, resource allocation, communication, persuasion, influence-resisting, etc. By dividing the class into two groups, one to find the best parts and the other to find the poorest, we always have a situation where theoretically, half the class is neutral to the nominations being considered for the class list.

4. The time allotted to speech-making is purposely kept short so as to necessitate each student being required to think through what he wishes to communicate to the group before he opens his mouth. It also reduces the tendency to ramble.

5. Maintaining a structured procedure for class discussions encourages more people to speak and reduces the opportunity for Mr. Big Mouth to dominate the entire discussion.

6. The requirement that each student identify his selection by article, section, and paragraph is simply a ground rule to facilitate the uniformity needed to make the game more operational.

Built-In Features of the Simulations "Constitution Today" Expressed in Behavioral Outcomes:

Simulation provides excellent opportunities for students to develop intellectual skill at every level of Bloom's Taxonomy. Each of these levels is illustrated below by sample behavioral outcomes taken from this simulation. As you play this game with your class, I am sure you will become aware of many other outcomes at each of these levels.

Cognitive Domain

Knowledge Level: Students will gain knowledge of specific facts about the Constitution.

Demonstration: It is axiomatic that as the student searches for evidence to support his selections and carries on extensive discussions he will gain knowledge of specific facts concerning the Constitution.

Comprehension Level: Students will comprehend some aspects of why democratic procedure is cumbersome, tedious, and time-consuming.

Demonstration: In class discussion students will experience the drag necessitated by each person having an opportunity to say his peace; will be bored by some of the repetition that he will hear in the oratory; and will sit through several series of discussions and ballots before one nomination has a clear majority vote.

Application Level: Students will apply the compromising process of log rolling.

Demonstration: They will quickly experience the need to give up some of their lesser goals to achieve their more important goals when it becomes necessary to obtain votes in favor of their nomination.

Analysis Level: Students will analyze arguments.

Demonstration: Students will be trying to take arguments apart and find the weak points in them. They will be looking for inconsistencies, exaggerations, irrelevancies, and points which cannot be supported by data.

Synthesis Level: Students will synthesize effective arguments.

Demonstration: The procedures will necessitate a student putting together an effective argument in order to win supporters to his nomination.

Evaluation Level: Students will evaluate the merits of their own Constitution.

Demonstration: A student will need to evaluate the Constitution on his own criteria as he selects parts of the Constitution to list on his Commitment Sheet.

Affective Domain

A student will value or at least respond to the significance of his country's Constitution.

Behavioral objectives in the affective domain, such as the one directly abov[illegible] co[illegible]ld be written for almost all of the concepts referred to in the co[illegible] domain. However, as in the example above, one has great difficu[illegible] determining whether the student is really valuing or just responding.

A Hypothesis to Consider:

Simulation is largely a testing procedure. Good testing procedure is also a good learning experience - right? Simulation demands that a student demonstrate his ability to cope with his artificial environment (test). As they attempt to cope with their artificial environment they learn by experience, (learning experience.)

SAMPLE:

This is a paper some students produced and distributed in an effort to influence their classmates thinking.

WHAT PART OF OUR CONSTITUTION HAS MOST SIGNIFICANTLY IMPROVED OUR COUNTRY?

ARTICLE FIVE or AMENDMENT ONE

(1) WHICH HAS MOST ALLOWED OUR COUNTRY TO ACT TO ITS POTENTIAL?

This is probably a tossup. Each has contributed in its own way. Amendment One has allowed more people to voice their opinions, and thereby allow our leaders to pick their decisions from a greater variety of ideas.

Article Five has also played a large hand in keeping America at its potential. It has allowed the Constitution to keep pace with the country. Our progress has not been slowed or dragged down by our Constitution.

An example of this is women voting. In 1787, when the Constitution was written, almost no women were college educated, few women held jobs, and they wanted no part of politics. To allow women to vote then would have hurt our country. But this changed so the Constitution was also changed to give women the vote. This was possible because of Article Five. Now, having women vote is an advantage to our country.

(2) WHICH GIVES THE COMMON PEOPLE MORE POWER?

Probably Article Five. Although Amendment One allows the people to voice their own opinions through the freedoms of press, speech, assembly, and petition. Article Five actually lets the common people directly change the Constitution.

(3) WHICH HAS KEPT REBELLIONS AGAINST OUR FEDERAL GOVERNMENT TO A MINIMUM?

This would definitely have to be Article Five. Article Five allows us to peacefully change the Constitution instead of with a complete overthrow of the government. A large number of rebellions have been attributed to dissatisfaction for a constitution. Maybe this causes more rebellions than any other single thing. Our own Revolutionary War is an example of this kind of rebellion. Any major rebellions against our country could ruin it and put the power into the wrong hands.

Some people may point out that Amendment One saved many religious revolutions. This is not true to a large extent, however. At that time, the religions were pretty localized and didn't mix much. So not many fights would have erupted.

(4) WHICH DID YOUR FELLOW STUDENTS MOST AGREE WITH AFTER TWO HOURS OF CONCENTRATED STUDY?

Article Five. One third of all the students who were in that section agreed Article Five was the best selection. By comparison, only 22% of the students in that section thought Amendment One was the very best. The other 44% were divided individually among their little fantasies.

WELL, THE EVIDENCE IS IN. LOOK IT OVER AND MAKE THE BEST SELECTION.

Paid for by CAAF

SAMPLE:

This is a paper some students produced and distributed to their classmates in an effort to influence opinions.

ARTICLE 1, SECTION 8, PARAGRAPH 18

"No one could deny that Congress had been given an extra dose of power by the decision to tack on the "necessary and proper" clause. (P 18) to Article 1, Section 8."

Alexander Hamilton and the Constitution, by Clinton Rossiter, 1964, Harcourt Brace and World, New York p. 201.

The previous quotation shows that the elastic clause gave many added powers to Congress. The next one shows the flexibility it has provided for our Constitution and Congress. (It is taken from the same book.)

"With the aid of the doctrine of implied powers Hamilton converted the most important of the twenty-odd powers enumerated in Article 1, Section 8, into firm foundations for whatever prodigious feats of legislation Americans might need to perform in the unimagined circumstances of the future." (p. 202)

Through research I found P 1 provides only for excise taxes. Amendment 16 allows income tax to be collected.

Further research shows that on p. 200 of our text it states in red print: "Today, income taxes are the federal government's major source of Income." This can be proved in the 1966 Almanac. (which is pretty recent.) In 1965 $78,900,000,000 was collected in income tax while only $14,715,000,000 was collected in excise taxes which is provided for in P 1. Five times as much tax money was gained from income taxes (amendment 16). Only 1/6 of the tax money from that year was gained through P 1. Therefore, even Amendment 16 is better than P 1 since it provides roughly 5/6 of the tax money yearly. Since, however A 16 is not even up for consideration, A 1, S 8, P 18 is the only logical choice since the extra power it gives the Congress and the flexibility it gives to our Constitution is more important than only 1/6 of the federal tax money.

APPENDIX B

CONTENT TEST ON U.S. CONSTITUTION

Content Test Constitution May, 1968

Name _____

_____1. The Constitutional Convention delegates agreed from the beginning on the need for
A. a strong central government
B. protection of property rights
C. separation of power
D. all of these

_____2. Presiding officer at the Convention was
A. Benjamin Franklin
B. John Jay
C. George Washington
D. James Madison

_____3. Conflicts of economic interests between Northerners and Southerners were resolved by
A. the commerce compromises
B. the three-fifths compromise
C. both of these
D. neither of these

_____4. The "Great Compromise" that made the Constitution acceptable to opposing interest in the United States provided for
A. a supreme court and inferior federal courts
B. a bill of rights
C. equal representation of the states in the upper house and representation based on population in the lower
D. prohibition of the importation of slaves for twenty years

_____5. A system of "checks and balances" was built into the Constitution of the United States to prevent
A. any one branch of the government from having too much power
B. changes in the Constitution that were not carefully considered
C. control of the government by any single political party
D. loss of states rights

_____6. In which body is representation based primarily on population
A. the United States Senate
B. the United States House of Representatives
C. the United States Supreme Court
D. the President's Cabinet

_____7. All states have the same number of persons in the
A. United States Senate
B. United States House of Representatives
C. Electoral College
D. United States Congress

_____ 8. Which is not an essential step in making a national law
A. a bill is submitted on the floor of either house
B. the bill passes both houses of Congress
C. the bill is presented to the President
D. the bill is referred to the United States Supreme Court

_____ 9. The Constitution of the United States sets up the principle that the power of government shall be
A. exercised be political parties
B. shared with no international organization
C. divided between the national and state governments
D. concentrated in the national government

_____10. Which body is specifically provided for in the Constitution of the United States
A. the President's Cabinet
B. the congressional committee
C. the political party
D. none of these

_____11. The Preamble of the Constitution of the United States sets forth the
A. rights of the people
B. structure of the national government
C. purposes of the national government
D. powers of the national government

_____12. Which of the following has a two-year term of office
A. a representative in the United States Congress
B. a United States Senator
C. a member of the President's Cabinet
D. the Vice President of the United States
E. a United States Ambassador

_____13. The United States Senate does not have the power to
A. ratify treaties
B. approve appointment of federal judges
C. impeach public officials
D. approve appointment of Cabinet members

_____14. Radio commentators report that the United States has ratified a treaty with Great Britain. Which one of the following can you be most certain about
A. the United States Congress has passed a law supporting the treaty
B. the United States Supreme Court has declared that the treaty is constitutional
C. the United States Senate has approved the agreement
D. the majority of the American people are in agreement with the treaty
E. the treaty has been approved by the United Nations

_____15. Newspaper headlines state that John Smith has been elected President of the United States. Which one of the following can you be certain about
A. he has the support of the farmers
B. he has the support of the business leaders
C. he has received a majority of the electoral votes
D. he has received a majority of the popular votes
E. he has the support of the labor unions

_____16. Of the following functions of the Vice President, which is specified by the Constitution
A. serving as President of the United States Senate
B. making good-will tours to foreign nations
C. relieving the President of a part of his workload
D. acting as chairman of Cabinet meetings

_____17. The President of the United States has the power to
A. enforce the laws
B. interpret the laws
C. make the laws
D. change the laws

_____18. By giving the President authority to be commander-in-chief of the armed forces, the makers of the Constitution tried to make sure that
A. there would be civilian control of military forces
B. the executive branch of the government would have supreme power over the legislative and judicial branches
C. the national government would be able to dominate the states
D. only the executive department could declare war

_____19. Justices of the United States Supreme Court are aided in making independent decisions by the fact that they
A. have lifetime tenure during good behavior
B. are prohibited from belonging to political parties
C. achieve their office through winning a nonpartisan election
D. cannot be impeached by the United States Congress

_____20. The function of a grand jury is to decide
A. whether the accused is guilty or not guilty
B. whether there is sufficient evidence to justify a trial
C. whether the case may be appealed to a high court
D. what the sentence shall be

_____21. Television newscasters inform the public that a high official of the national government has been impeached. Which of the following would you be most certain of
   A. the official has been formally accused of misconduct in office
   B. the public is dissatisfied with the policies of the official
   C. the official has been removed from office by the President
   D. the official is guilty of misconduct in office
   E. the official has been arrested by the police

_____22. Fundamentally, all political power in the United States comes from the
   A. Constitution of the United States
   B. original thirteen states which were colonies
   C. people of the United States
   D. political parties

_____23. "Implied powers" are the powers of the national government which are necessary to
   A. amend the national Constitution
   B. prevent the state governments from expanding their powers beyond those given to them by the Constitution
   C. allow the national government to do the jobs given to it by the Constitution
   D. allow speedy governmental action in a national emergency.

_____24. The first eight amendments to the Constitution of the United States were designed to protect the rights of
   A. the states
   B. the national government
   C. minorities
   D. individuals

_____25. Suppose an organization preaching race-hatred and dictatorship wanted to hold meetings in a certain city. Should the mayor allow the organization to meet in his city
   A. no
   B. no, unless the organization agrees to tone down its policies
   C. yes, if the group has only a small membership
   D. yes, as long as the organization does not practice violence

_____26. A television program shows the police breaking into a home to look for a suspect in a crime, without telling the occupants who they are or why they are there. Such a program shows the police
   A. breaking the law
   B. doing what they need to do to enforce the law
   C. acting legally but with undesirable rudeness
   D. treating criminals as they deserve to be treated

_____27. Newspapermen who write editorials criticising local officials, customs, and beliefs should be
A. banned from further writing
B. required to submit all articles to a local censorship board
C. required to retract their statements
D. permitted to do so as long as they do not maliciously injure reputations

_____28. Police should be allowed to detain a man for as long as a week, while deciding whether to bring charges against him
A. under no circumstances
B. only when dealing with the severest of crimes
C. only when they feel it necessary to gain a confession
D. only in dealing with crimes against women and children

_____29. The ultimate responsibility for negotiating treaties rests with
A. ambassadors
B. the Department of State
C. the Vice President of the United States
D. the President of the United States

_____30. Special sessions of Congress are called by the
A. Speaker of the House of Representatives
B. President of the Senate
C. President of the United States
D. Vice President of the United States

_____31. Justices of the Supreme Court are selected by the
A. President
B. House of Representatives
C. Senate
D. American Bar Association

_____32. Presidential veto can be overridden by Congress by a
A. plurality
B. simple majority
C. two-thirds majority
D. none of these

_____33. Treaties are approved by
A. the Senate
B. the House of Representatives
C. a joint meeting of the Senate and House
D. a conference committee of the two Houses

_____34. The President of the United States can hold Congress in check by
A. use of the veto
B. going to the American people
C. exercising political leadership
D. all of these

_____35. The basic authority for the United States Government to collect income tax is
A. Article I of the Constitution
B. Fifteenth Amendment
C. Sixteenth Amendment
D. Eighteenth Amendment

_____36. Which amendment to the United States Constitution provides that women cannot be denied the right to vote because they are women
A. Nineteenth Amendment
B. Twentieth Amendment
C. Twenty-first Amendment
D. Twenty-second Amendment

_____37. The Tenth Amendment to the United States Constitution is concerned with
A. the reserved powers of the states
B. equal protection under the law
C. due process of law
D. the number of terms a President can serve

_____38. The power to pardon a Federal prisoner belongs to
A. Congress
B. the Chief Justice of the United States
C. the Attorney General
D. the President

_____39. How many states must approve a Constitutional Amendment before it can be added to the Constitution
A. one-half
B. two-thirds
C. three-fourths
D. all

_____40. The "due process clause" in the United States Constitution is found in the
A. Tenth Amendment
B. Thirteenth Amendment
C. Fourteenth Amendment
D. Fifteenth Amendment

_____41. Prohibition in the United States was provided for in the United States Constitution in the
A. Fifteenth Amendment
B. Sixteenth Amendment
C. Seventeenth Amendment
D. Eighteenth Amendment

_____42. Authorization of the debt of the United States is a power belonging to
A. the President
B. the Supreme Court
C. Congress
D. the states

_____43. Impeachment charges against the President of the United States must be presented by the
A. Supreme Court
B. House of Representatives
C. Senate
D. Cabinet

_____44. Freedom of religion is guaranteed in the
A. First Amendment
B. Fifth Amendment
C. Eighth Amendment
D. Twelfth Amendment

_____45. The President of the United States is responsible to
A. Congress
B. Senate
C. the people
D. State legislatures

_____46. Judges on the Supreme Court are appointed by the
A. American Bar Association
B. President of the Senate
C. President of the United States
D. other members of the Court

_____47. The Commander-in-Chief of the Armed Forces is the
A. Joint Chiefs of Staff
B. Secretary of Defense
C. Vice President
D. President

_____48. The regulation of interstate commerce is a power delegated by the Constitution to the
A. states
B. interstate commerce commission
C. House of Representatives
D. Congress

_____49. The final judge as to whether or not a law is constitutional is the
A. President
B. Congress
C. Supreme Court
D. Court of Appeals

_____50. The reserved powers in the Constitution belong to the
A. states
B. federal government
C. whichever level Congress decides on a given issue
D. none of these

_____51. Article XVI of the Amendments to the Constitution authorizes
A. women to vote
B. the Federal Government to levy an income tax
C. prohibition
D. senators to be elected by popular vote

_____52. Who can write a bill for introduction into the Congress
A. congressmen only
B. congressmen and the President only
C. congressmen, the President, and Vice President only
D. any American citizen

_____53. Bills for appropriating money must be introduced in what House of the United States Congress
A. Senate
B. House of Representatives
C. may be introduced in either House
D. none of these

_____54. The President of the United States is elected constitutionally by
A. popular vote
B. the Electoral College
C. Congress
D. Senate

_____55. What principle of government best reflects the relationship between the branches of the central government
A. separation of powers
B. fusion of powers
C. totalitarianism
D. none of these

_____56. Article XIX of the Amendments authorizes
A. women to vote
B. the Federal Government to levy an income tax
C. prohibition
D. senators to be elected by popular vote

_____57. The Bill of Rights is found in what part of the Constitution
A. Article I
B. Article IV
C. Article VII
D. First ten Amendments

_____58. Concurrent powers may be defined as
A. powers exercised primarily by the Federal Government
B. powers exercised primarily by the states
C. powers exercised by both levels of government at the same time
D. none of these

_____59. Treaties must be approved by
A. the Senate
B. the House of Representatives
C. both Houses in joint session
D. no one other than the President

_____60. How many Representatives does each state send to the House of Representatives
A. two
B. four
C. a number in proportion to the population of the state
D. an equal number of Representatives, as determined by the congress

_____61. What portion of the electoral vote must a presidential candidate win to become President of the United States
A. plurality only
B. absolute majority
C. two-thirds majority
D. three-fourths majority

_____62. Slavery was abolished in the United States by the
A. Twelfth Amendment
B. Fourteenth Amendment
C. Fifteenth Amendment
D. none of these

_____63. The power to declare war rests with the
A. President
B. Senate
C. Congress
D. Secretary of Defense

True or False: write a T or F

_____64. The division of responsibility in Federal Government is sharply defined in the Constitution.

_____65. Freedom of press allows the press to print anything about anyone.

_____66. It is impossible to change the Constitution.

_____67. The Federal Constitution also determines what powers the state governments will have.

_____68. The Second Amendment gives citizens the right to own and possess a gun.

_____69. The Fifth Amendment keeps the government from taking your land if they wish to use it for some government purpose.

_____70. The Fifth Amendment guarantees a man that he does not have to be a witness against himself.

APPENDIX C

ATTITUDE TOWARDS U.S. CONSTITUTION SURVEY

Survey of Attitudes Towards U.S. Constitution -- your opinions

Name _____

In front of each statement below please place a number that indicates your opinion.

1. strongly agree
2. agree
3. undecided
4. disagree
5. strongly disagree

_____1. The Constitution is not important enough and will not affect the average citizen enough for him to be concerned.

_____2. There is little reason for the average citizen to be informed about the Constitution.

_____3. The Constitution protects the rights of the higher class more than it does the lower class.

_____4. The Constitution protects the rights of the lower classes more than it does the higher classes.

_____5. Studying the Constitution of America is dry and boring.

_____6. A study of the Constitution is a waste of time.

_____7. The Constitution is more meaningful to a Negro living in Chicago than an Anglo-Saxon farmer living in Kansas.

_____8. The U.S. Constitution has little or no meaning to aliens.

_____9. The average man on the street gets very little benefit from the Constitution of the United States.

____10. Our Constitution needs to be changed.

____11. People should spend more time studying the Constitution.

____12. The Constitution affects our daily lives a great deal.

____13. It is important that the Constitution be able to be changed as time goes along.

_____14. The Constitution protects the rights of the American people.

_____15. Through indifference and ignorance, our fundamental rights might be lost.

_____16. Article V (how to amend) is one of the most important parts of the Constitution because it makes the Constitution useful in a modern world.

_____17. More time in school should be spent in gaining an understanding of the Constitution.

_____18. The due process clause of the Constitution is one of the most important aspects of the document.

APPENDIX D

ATTITUDE TOWARDS INSTRUCTIONAL PROCESS SURVEY

Student Attitude Towards Unit on Constitutional Study

Name_____

In front of each statement below place a number that indicates your opinion.

1. strongly agree
2. agree
3. undecided
4. disagree
5. strongly disagree

_____ 1. This unit has helped me to appreciate the Constitution.

_____ 2. This unit has helped me to become more aware of my responsibility as a citizen.

_____ 3. This unit has helped me to become more aware of my rights as a citizen.

_____ 4. This unit has helped me to understand how the Constitution applies to my everyday life.

_____ 5. The objectives of this unit were obvious throughout the study.

_____ 6. The teacher seemed interested in studying the Constitution.

_____ 7. The teacher was well informed and demonstrated a broad and accurate knowledge of the subject.

_____ 8. The students were usually alert and attentive during this unit.

_____ 9. The students were involved in our learning situation during this unit.

_____10. This approach to study of the Constitution was stimulating to our creative thinking.

_____11. The instruction was to our level and could be followed readily by most members of the class.

_____12. Assignments in this system were clear.

_____13. Assignments in this system were reasonable.

_____14. A study of the Constitution by this method was interesting.

_____15. A study of the Constitution by this method was meaningful.

_____16. A study of the Constitution by this method was enjoyable.

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